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Dehumanization Tactics in Nazi Concentration Camps

by Jennifer Allen

World War II was a victory for the United States yet a defeat for the millions who suffered under German power. While Americans rejoiced at the end of the war, bodies upon bodies were discovered in the Nazi concentration camps. To this day, many still do not believe the atrocities that occurred in the camps. Hopefully, the evidence shown here will enlighten the non-believers, especially because most of the research material came from personal accounts.

The Nazi concentration camps of the early to mid- 1940s attempted to wipe out millions of beings whom the Nazis had deemed subhuman. The final solution, so-called by Hitler and his followers, first required the relocation of those chosen to ghettos, but eventually, all were shipped to concentration camps. In these camps, prisoners lived in conditions unimaginable to the western world. The camps were set up to hold hundreds of inmates, but in reality, the Nazis crammed thousands into them daily. If they survived the train ride to the camps, once off the train, families were ripped apart. Newcomers were immediately stripped of all belongings and transformed into people with no identity. They lived on minimal amounts of food, suffered from disease, and worked under conditions that not even a healthy person could endure. Punishments were given out many times for ridiculous reasons, or no reasons at all, and murders occurred in large numbers throughout the day. In addition, Nazi doctors experimented on these poor, withered prisoners, using them as guinea pigs.

The treatment was so horrible that those in charge did not want news of it to reach other nations. In Heinrich Himmler's infamous speech to fellow Nazis, he spells out the goals of the camps:

> This is a page of glory in our history, which has never been written and is never to be written. . . . We had the moral right, we had the duty to our people, to destroy the people which wanted to destroy us." (Crankshaw 5)

The concentration camps, however, did more than merely destroy the physical lives of their inhabitants. Through horrendous living conditions, grueling labor, sadistic treatment, and shocking medical experiments, the Nazi concentration camps dehumanized the millions of victims who passed through their gates.

Before passing through the camp gates, thousands of disoriented men, women, and children piled out of a train. The first

job was to remove the dead bodies from the cars: "The corpses were thrown out—wet with sweat and urine, soiled with excrement, menstrual blood on their legs . . . . The naked corpses were carried in wooden barrows just a few metres away" (Feig 280). One survivor of the Treblinka camp witnessed hundreds of dead bodies lying around (Kogon *et. al.* 126). To deceive the new arrivals, Treblinka was set up as a train station, complete with a clock, waiting room, and even a ticket counter (Rogasky 81). Once off the train, all valuables were removed and gathered on the dock (Central Commission 41). At camps built purely for the extermination of the prisoners, such as Chelmno and Treblinka, there was typically not a selection. Instead, the guards told the masses that they would be given showers and then put to work, but work was never on the Nazi agenda (Breitman 237). These poor souls were further deceived by the signs that proclaimed "TO THE WASHROOM" (Central Commission 101). Instead of showering, these arrivals were escorted straight into a gas chamber that inevitably brought death.

At other camps, a small number of men and women, usually amounting to ten percent, were separated from the group for the labor facilities (Central Commission 41). Those not selected for labor were forced towards the gas chambers, undergoing constant kicking, beating, and stone throwing as they went (Kogon 9). In addition, many times dogs were used to speed up the process: "The dogs had been trained to attack people; they bit the men's genitals and the women's breasts, ripping off pieces of flesh. The Germans hit the people with whips and iron bars to spur them on" (Kogon, Eugen, Hermann Langbein 126).

The group destined for the gas chamber always included children, pregnant women, anyone holding an infant, elderly, and sick or disabled (Crankshaw 194). One survivor describes the selection involving children: "Like a metronome this finger swayed from side to side as each victim appeared before him, with a face molded in ice, without a flicker of an eyelash. . . . When it came [the children's] turn to stand before this automaton, they stretched out their pitiful arms and pleaded and beseeched, 'please Herr General. Look how strong I am. I can work. I want to live" (Rogasky 74). Often, prisoners were on the verge of tears when watching a child, oblivious to the world around him, heading towards the gas chamber (Eisen 66). Although mothers attempted to hide their children under their dresses, the children were always found and sent to the gas chamber (Crankshaw 194). Many parents would hand their children over to an elderly or sick person to save their own lives. SS man Hitreider was known to the camp at Treblinka as the infant killer. He grabbed the children from line and threw them against the fence before stuffing them into the gas chamber (Central Commission 101). Pregnant women were "beaten with clubs and whips, torn by dogs, dragged around by the hair and kicked in the stomach. . . . Then, when they collapsed, they were thrown into the crematory--alive" (Des Press 86-87). All people showing signs of illness were taken to a building labeled Red Cross. They entered through

a waiting room that even had upholstered furniture. However, as they opened the door to enter the infirmary, they were shot in the neck and immediately tossed into a ditch (Rogasky 81). The Nazis treated all those persons who were deemed unable to work as unnecessary, and those not selected were subsequently killed.

Those who were selected were torn away from their families. Thrust into the camps, they were "reduced to immediate physical existence through a process of desublimation so abrupt and thorough that . . . nothing remained of the self that had been" (Des Pres 182). These prisoners immediately underwent a disinfecting process. All who entered the camps were shaven from head to toe and subsequently sent to the showers (Central Commission 47). Some became victims of a disinfectant dip. In this process, they were immersed in an antiseptic solution that often times burned the skin (Kogon 73). After cleansing, each prisoner reported to roll call completely naked. Hinda Kibort, survivor of Struhoff, describes a body search which was part of roll call: "We had to stand spread-eagle and spread out our fingers. They looked through the hair, they looked into the mouth, they looked in the ears, and then we had to lie down. They looked into every orifice of the body, right in front of everybody" (Lewin 52-53). Next, the inmates received their uniforms, without regard to size, including wooden shoes (Kogon 73). To further dehumanize the prisoners, they received numbers which became their name for their entire stay in the camps. The number was sewn onto the clothing and, for the Jews, burned onto the skin. The Nazis announced, "You no longer have a name; this is your new name" (Levi 12). In addition to the number, the SS men divided the prisoners into groups and further de-individualized them. They assigned colored triangles to be worn on the blouse and on the pant leg. Red was for political prisoners, black for prostitutes and perverts, green for professional criminals, pink for homosexuals, violet for clergymen, and the Star of David for Jews. The also sewed the first letter of the prisoners' nationality onto the triangle (Central Commission 45). The aim here was "to change the free man into an obedient number without his own will, to kill in him the feeling of human dignity, and to make him a servile labouring [sic] unit" (Central Commission 46). The prisoners no longer had the rights of human beings, much less free persons.

The daily life of the concentration camp inmates can be summarized as follows: awakened at 5:00 a.m., thirty minutes to wash, dress, eat, and make beds, thirty minutes of calisthenics, roll call, labor details until noon, thirty minutes for lunch, return to work, eat after dark, and often times return to work (Kogon 81-82). The meals were not always given on time, however, and they were insufficient to sustain a work day of twelve hours or more. For their first meal, the inmates were to receive coffee and bread. The coffee had almost no caloric value, and the bread had either been chewed on by the mice and rats, or it was coated in fungus (Feig 140). Sometimes they ate small pieces of cheese, which was "crawling with worms" (Lewin 46). If the inmates actually received lunch, it consisted of

soup or broth. One survivor describes the appalling state of the soup as rotten and containing buttons, hair, rags, keys or mice (Feig 179). The evening meal was the same as lunch, if the inmates were fortunate to receive a third supply of food. To further destroy the prisoners' dignity, they were forced to consume soup as a dog by lowering their heads to the bowls (Levi 113). Many prisoners hoped to work near the SS dog's mess because the dogs were fed much better than the inmates (Kogon 122).

Under these straining conditions, prisoners would eat anything from anywhere. If a piece of bread was found underneath a sick person or even covered in excrement, it soon disappeared (Feig 179). One survivor of Birkenau watched one woman choke to death on a piece of bread. Immediately, another inmate darted over to her, stuck a hand into the dead woman's throat and triumphantly pulled out the bread to eat (Feig 180). Prisoners were even known to lap up undigested vomit from the ground. At Mauthausen, incidents of cannibalism arose. One group of prisoners entered a room and found various corpses lying on the ground missing pieces of flesh. Although dead, another prisoner was found "spattered with blood and still had a piece of flesh in his mouth" (Feig 122). To guard themselves from bread stealers, the prisoners established the "bread law." Instead of reporting the incident to the Block Leader, the other prisoners beat the criminal to death or so harshly that he or she ended up in the crematorium. The reasoning was that stolen food was the equivalent to murder (Des Pres 142).

Along with food deprivation, the situation in the barracks destroyed the humanity of the concentration camp prisoners. The prisoner occupied a one and one half meter hard board and usually shared it with five or six prisoners (Feig 180). A thin mattress of straw or wood shavings was all one had to sleep on (Levi 116). Moldy and stained, the mattress was also shared with rats and mice. These rodents attacked at night and gnawed the faces of corpses. Some of the rats grew to the size of cats by eating so well (Feig 179). The SS dogs were given a decent-sized grass plot and lived in sanitary conditions. Comparatively, the concentration camp huts for prisoners had thin walls and leaky roofs with each one housing approximately three-hundred (Central Commission 61-62). There was no available running water in which to bathe, so the prisoners resorted to other methods. They used the imitation coffee from mealtime, rain pools, and even the ditches which were used as a lavatory (Central Commission). Those inmates who did not wash everyday were more susceptible to disease and usually died soon after their arrival (Des Pres 63-64).

One of the worst sanitation problems for prisoners was the latrine situation. Typhus as well as other diseases caused violent and uncontrollable diarrhea (Des Pres 53). Those who failed to recover from this "were slowly enveloped in their own decomposition" (Des Pres 55). In many camps, the lavatories merely consisted of a pit with railings which the prisoner squatted over, and in some instances, the prisoners fell or were thrown into these pits (Des Pres 58-59). At another camp,

there was one latrine for thirty thousand inmates (Des Pres 54). Because the inmates could use the latrine only at limited times, they were forced to find other facilities. Some women at Birkenau acquired a metal pan. They used it for their soup, to wash in, and finally as a night latrine (Levi 112). The nights were the worst for physiological problems because prisoners were forbidden to use the lavatory. The diarrhea "flooded the bottom of the cages, dripping through the cracks into the faces of the [prisoners] lying in the cages below, and mixed with blood, pus and urine, formed a slimy fetid mud on the floor of the barracks" (Des Pres 53). The lack of sanitation forced the prisoners of these camps to walk through excreta in the bunks, and often they awoke with it covering their bodies.

The selections, lack of food, and unsanitary quarters slowly transformed the concentration camp inmates into animals. With no identity, they were subsequently starved, and many died of disease. Upon entering a tent in a Neumark camp, one witness describes a terrifying scene: "I could hardly distinguish anything in the semi-darkness, least of all the women lying on the ground. . . . After awhile my eyes became accustomed to the light . . . I screamed in horror . . . it was hard to believe the women on the ground were still human beings. Their rigid bodies were skeletons, their eyes glazed from long starvation . . . bundles of straw on which they lay were putrid from their urine and excreta. Their frozen limbs were fetid and covered with wounds and bites to the point of bleeding, and countless nested in the pus. . . . And yet . . . they were alive" (Des Pres 44-45). This gruesome scene presents the camp victims as corpses--not living human beings. When the camps were liberated, the soldiers described them as disproportionate, looking like skeletons. Each vertebra could be counted and all of the inmates' eyes were sunken in (Abzug 122). The prisoners had learned to fight for survival, no matter whom they hurt in the process. In doing so, they lost touch with the reality of their past and created a new one. Diving for food at any chance, urinating on themselves, scratching bites until their skin was covered in pus--all of these actions were forced upon them when the Nazis took their lives and freedom away. They became unrecognizable as humans and were transformed into the walking dead.

The Nazis destroyed the lives of the prisoners also by putting them to work in the camps. The lack of nourishment and rest intensified the grueling work. Calisthenics, known to the prisoners as sports and gymnastics, began early in the morning before mealtime. Inmates did kneebends and push ups in the mud, and also held oversized stones over their heads. If the prisoner fell, the SS retaliated with gunfire or beatings. Another sport was tag in which two or three were ordered to chase each other, and the loser ended in death. One type of gymnastics forced the inmates into rows of five. They were "forced to crouch, to jump, to dance with uplifted hands, to run in a circle barefooted on the gravelled square" (Central Commission 49). If they fell, they were instantly beaten by the SS. Another incident of gymnastics began when the SS

ordered fifty prisoners to climb a tree. The tree was slender and young, and the inmates were all expected to climb it at once. If they did not reach the top or if the tree broke, they were severely beaten. (Central Commission 50). After the sports and gymnastics, many inmates were left injured or dead.

The labor details forced the inmates to work in excruciating circumstances. The worst of these details was working in the quarry. At one camp, the Jewish prisoners slid down the rocks at the quarry. They were not permitted to use the stairs on the way down, but they were forced to carry heavy stones at a running pace up the narrow 148 steps. Many times they dropped their rocks, crushing those prisoners behind them. In addition, the SS beat them if any rocks fell (Kogon 179). At Mauthausen, the prisoners lifted the rocks with bare hands, pulling with their backs. There were various wagons attached to the railroad tracks, and the prisoners loaded the stones into them. The wagons proved extremely dangerous because many times they jumped the track, killing many workers (Feig 121). The prisoners were not expected to last longer than three months at the stone quarry. They did much pick and axe work, and the harshness began to take its toll early (Abzug 106). In addition, the SS used explosives without regard to the inmates who might be harmed. Many quarry workers jumped over the edge to their death, or the SS pushed them over the edge (Feig 121). As one witness recalls, a Jew with a beautiful singing voice was called upon to sing at the quarry. He was ordered to stand on top of a rock mound and sing *Ave Maria* at the top of his lungs. The guards then set charges under the rocks and blasted the singer out of the quarry (Abzug 106).

The labor details at Auschwitz worked at draining the swamps and marshes, in mines, and on roads. Silence was strictly enforced, and prisoners did everything at a running pace. For any slight deviation, the SS beat them until they lay unconscious. The prisoners were to be "beasts of burden--pull, push, carry weights, [and] bend over the soil" (Levi 121). One inmate was unable to lift a large stone, and the SS man threw a brick at him. The inmate collapsed into unconsciousness, but the SS guard doused him with water to revive him. Consequently, he was thrown against a tree and shot (Kogon 98). The transportation detail physically exhausted itself. They were harnessed to a wagon which followed an SS guard riding a motorcycle. The prisoners here were used in place of horses (Kogon 98). The Jewish inmates and priests suffered the most in the labor details. The guards harnessed rollers to them and ordered them to run. Those who collapsed were beaten to death with sticks (Central Commission 52).

Digging basements also brought excruciating pain. One incident in this detail was ordered by the Kapo Reinhold. He threw an old Jewish inmate into the water-filled hole. The prisoner's son was forced to drown his father by holding his head under the water. The son was subsequently murdered when Reinhold ordered the other prisoners to drown him (Central Commission 54).

"Gardening" involved the transporta-

tion of stones or soil in large quantities. The prisoners were only allowed a rack to carry the quantities, and the guards kept them at a fast pace. This also involved "manure-carrying," which was controlled by dogs trained to attack any prisoner who collapsed. A Russian prisoner of war spilled a little on the SS guard during this routine. The guard immediately shot the inmate who was at fault, and the partner was attacked by dogs and trampled by other SS guards. The dogs ripped apart the bodies of both men. The other workers were forced to continue during the entire incident (Kogon 95).

Latrine detail was especially ghastly and often dangerous. At Mauthausen, the SS assigned the Jews to the task of dumping latrine buckets. They carried the toilet pails on poles, which consequently splashed excrement all over their bodies (Feig 121). This job was made even more dangerous by the sadism of the guards who often threw the workers into the pit full of excrement (Des Pres 54). The prisoners cleaned these pits with small pails, and each night approximately ten fell in while cleaning. They were not retrieved until the job was done, but by that point the inmates had already suffocated on the excrement and bile (Des Pres 58-59). Every detail group worked under extreme circumstances and utter exhaustion. They worked approximately twelve hours a day for one bowl of soup and a cup of watery coffee. Many died in the fields or quarries, some from natural causes, others from SS brutality. One group working in the forest was forced to wear leg irons like animals. These groups were often shot to death out of pleasure by the guards (Kogen, Eugen, Hermann Langbein 89). The prisoners were "hung in trees, drowned in mud, hit on the head," and their ribs were broken (Feig 193). The guards jumped on them "until the mouth of the tortured was full of blood" (193). With no tools to speak of, the prisoners did work which would physically exhaust a healthy man (98). At the end of the day, these wretched laborers returned to the camps "bleeding, exhausted, carrying corpses on wooden stretchers, on their backs, or in carts" (Central Commission 51-52). Yet, they still had to endure roll call, and the dead were laid out like the other prisoners to be counted (Central Commission 52).

A final task of the concentration camp laborers was to help the SS men. SS Major Christian Wirth was the camp commander at Treblinka. He developed the idea for Jews to deal with and punish other Jews. They were immediately employed at the arrival ramp. The prisoners working here would collect the valuables from the incoming victims. They would also help to extract the gold from the dead prisoners' teeth, during which they could accumulate riches, although they too would soon die (Crankshaw 188). The special squads of inmates were to maintain order at the gates, and they also took part in the cutting of women's hair, sorting clothes, and recording everything in the books (Levi 50).

The more traumatizing chores were for the prisoners who helped in the crematorium and gas chambers. They forced new arrivals into the gas chambers, and later they emptied their dead bodies out of gas chambers. At Belzec, this removal was

primitive in structure: "Leather belts with buckles were put around the arms of the dead which were dragged like carcasses over the road to the pits" (Feig 229). They were forced to load up trucks full of corpses to be burned in the crematorium. Others unloaded the thousands of bodies into the crematorium, cramming in as much as would fit and then slamming the doors. The special squad would turn "the corpses in the pits and pour a special liquid so that their bodies would burn better" (Des Pres 6). One survivor who was forced into this position relates his experience: "And so the Germans succeeded in making murderers of even us. To this day the picture of those murdered babies haunts me. . . . The only meager consolation is that by these murders we saved the mothers . . . for they would have been thrown into the crematory ovens while still alive" (Des Pres 6). Other prisoners were enlisted for much more brutal help. The Kapos and block leaders were characteristically savage and ruthless. One such Kapo, called the "Giant Jew," was kept especially for killing other inmates. He would smash the back of a prisoner's head, strangle a prisoner by pulling on the collar and forcing the head forward, or use his third method. This involved throwing the prisoner down face upward and bracing the back of the neck with bricks. Next he put a pole over the victim's throat and stood on it with feet at both ends until death (Central Commission 60).

In addition to the hard labor and dehumanizing work, the prisoners also endured pain and humiliation at the hands of the SS guards. Many forms of punishment were implemented, most ending in death. The SS men were actually ordered to beat and torture without discriminating or favoring gender or age (Central Commission 38). If arrested, the prisoner was escorted to the bunker, which was a dark cell too small for the inmate to sit or lie down (Central Commission 57). They were thrown in the cell naked and without food except on every fourth day after arrest (Central Commission 17). The convict endured a strip search before entering the unlit cell. Chained to the radiator, the prisoners were beaten and whipped unconscious if caught asleep (Kogon 229). Throughout the stay in the bunker, the inmate was given poisoned food and sometimes beaten to death with an iron pole (Kogon 230-31).

The starvation cell, another form of imprisonment in the concentration camps, led to cannibalism. These cells held more than one prisoner, but none of them received food or water. When the guard finally opened the door, either to release the inmate or to clear out the dead bodies, "a horrible smell of decaying corpses" filled the hall. In one instance, the guard found a corpse "with his intestines pulled out, and beside him a second prisoner's body holding the liver of his companion" (Central Commission 57). The cells, however, were often not the worst punishment in the camps.

Flogging and whipping destroyed many of the inmates. When a prisoner was flogged, he was usually stripped in front of his fellow inmates during roll call. A whipping rack was brought out to the roll call area and placed on the top of a stone (Kogon 112). With a leather whip, the

inmate was flogged until his skin broke open and blood flowed freely. If the prisoner fainted before the punishment was over, the guard revived him with water and continued on with the task. Many times this torture resulted in huge tumors the size of a human fist (Central Commission 58-59). Afterwards, the guard forced the weakened inmate to do knee bends, causing excruciating pain to the wound (Kogon 111). The "tree whip" was another form of this which lasted from thirty minutes to four hours. The SS men lifted the prisoner, whose hands were tied behind the back, high into the air. Subsequently, he beat the inmate's face, feet, and sexual organs. Many times the victim cried to be shot, but that never occurred. Even if the victim lost consciousness, the guard poured water on the inmate until he or she revived. The guards wanted the punished to completely feel the pain and humiliation of the ordeal, which ultimately caused permanent injuries or death (Kogon 112).

An infamous torturer, Martin Sommer, was called the "Hangman of Buchenwald" (Feig 100). Before hanging his victims, however, he put them through enormous pain: He "made prisoners immerse their testicles in ice-cold and boiling water, and then he painted them with iodine as the skin came off in strips" (100). Once Sommer had strung up the inmate, he hit them with an iron bar until death. Sommer also used the dreaded iron clamp to crush the skulls of prisoners. Additionally, "when a prisoner asked permission to go to the bathroom after eating food laced with cathartics, Sommer forced him to stick his head in the filled toilet" (100). Multiple numbers of prisoners perished by the hands of the block leader. They were lined up against a brick wall and had their jaws struck so hard that they split. The other side of their head ultimately smashed against the wall, and the prisoner died of head injuries (Feig 100). One block leader, Ilse Koch, struck fear in the hearts of Auschwitz prisoners. In one instance, she attempted to pressurize the water from a hose so that it would tear through a woman's stomach (Lewin 7). One guard received pleasure out of throwing prisoners to the Buchenwald Zoo animals, including bears and rhinoceros (Feig 104).

> Living human beings had entered the camps only to become ashes scattered in the water.

There were other various methods of enforcing discipline among the prisoners. "The bath" entailed plunging an inmate's head into water until suffocation (Crankshaw 127). Electric current was also used, attached to the hands, feet, in the anus, and for men, in the penis" (Crankshaw 127). On numerous occasions, prisoners were required to stand for hours on end while lifting a heavy stone (Central Commission 58-59). One incident involves a teacher in the camps who was tortured horrendously. With one arm out of joint, he was flogged and electrified. The SS man placed matches under his finger and toe nails, and then he wrapped his wrists and ankles in paper.

The matches were lit, and while he burned, the guard stabbed him with a pointed knife and whipped him. Amazingly, the prisoner survived the torment, but the phosphorous burned off several of his fingers (Crankshaw 127). Most of the preceding punishments were for small violations including unshined shoes, torn clothes, or failing to salute (Kogon 114). Men and women were tortured for violations which they were too weak to avoid.

The most innocent victims of the punishments were the few children that found their way into the camps. Some of these young ones were born at the camp, but those did not live beyond a few hours. Up until 1943, newborn babies born in the camp were drowned in a bucket. After death was confirmed, and sometimes before that, the babies were tossed outside and became food for the rats (Feig 184). In Birkenau, two days after Christmas, a Jewish baby was born. Within three hours, the nurse plunged the newborn into a barrel of ice cold water: "The baby swallowed and gurgled, its little voice chittering like a small bird, until its breath became shorter and shorter. The woman held its head in the water. After about eight minutes the breathing stopped. The woman picked it up, wrapped it up again, and put it among the other corpses" (Feig 184). Many children were thrown into the crematorium upon arrival. To save space and time, they were not killed beforehand, and the screams of little children could be heard throughout the camps (Lewin 11-12). The infants who did survive had to be hidden from the guards. These young ones suffered from "slow hunger death." The child's "skin turned thin, like parchment, transparent, so that one could see the tendons, veins, and bones" (Feig 184). The children who lived in the camps grew up with games such as "'gas chamber,' when they made a hole in the ground and threw in rocks representing people" (Eisen 80-81). These children were scarred for life, never knowing any other game except for burying the dead (Eisen 120).

Death was all around them. "Shot while trying to escape" was a common plea for the SS men. In Auschwitz, the SS first shot people outside the camps by tying prisoners to posts. The bodies were simply disposed of in a large ditch. Later, this was done in a special block inside the camps. Upon a platform which was painted black, the prisoners were bound together with barbed wire. Many times this cut deeply into the skin. Facing away from the guards, they were shot in the back of the head at close range (Central Commission 81). Even children were dealt with in this way. One man testified, "I drove the children to the brink of the ditch . . . . where another SS man stood . . . . He shot them with his submachine gun and, then, with the tip of his boot kicked them into the ditch" (Eisen 15). Like animals being hunted, the Nazis shot down thousands without giving it a second thought. However, eventually the Nazis stopped shooting prisoners as a method of mass extermination because it was lengthy, and it also burdened the executioners heavily (Breitman 197). Shooting was replaced with poisoned gas, which was to be the method by which millions of victims perished.

The best way to transform humans into

sub-humans was to kill them in large numbers. The first gassings took place in vans specially created for this purpose. Carbon monoxide was pumped into the van while it was driven into the woods (Feig 168). When the driver started the ignition, the victims were heard screaming and kicking. They were fighting for their lives, but to no avail (Kogen, *et. al.* 86). The killing process took only fifteen minutes, and each van held approximately eighty to one-hundred people. The bodies were dumped into large ditches, and the van returned for more victims. One witness described the event: "I followed the van and then came the most horrifying sight I've ever seen in my life. The van drew up alongside a pit, the doors were opened and the bodies thrown out; the limbs were still supple, as if they were still alive" (Feig 270-71). Indeed, the bodies had been alive not fifteen minutes before. The major defect in this process was that many times the vans broke down, and the prisoners arrived at the destination still alive (Feig 271).

When experts were given the chore to determine a more effective method of killing, Zyklon B was introduced. This had once been used to kill rats and bugs; now it was destined to kill millions of people (Rogasky 79). Zyklon B, hydrogen cyanide, transformed into a poisonous gas when mixed with air. First tested at Auschwitz, the gas was poured onto the floor, and then the room was sealed. However, some victims remained alive the next day (Central Commission 83). The gas was then poured through the ceiling via an opening, killing 750 to 850 victims. The "blue chalk-like pellets" created the poison gas and the SS men sealed the doors (Breitman 203). Eventually, the process was extended to three-thousand people at once (Crankshaw 194).

When the gas entered the gas chamber, the victims raced for the door opposite the gas opening. Screams and loud sounds could be heard because the Nazis installed a window. They wanted to watch the thousands of people suck their last breath of air. Claw marks from where the victims tried to escape were all over the walls near the exit door (Feig 117). Although the victims may not have been aware of their surroundings before the gas was distributed, "they knew in their last minutes what has happening, and then they would stampede away from the columns and pile up against the great metal door, shrieking, and fighting in mass panic" (Crankshaw 200). Hydrogen cyanide killed its victims through internal suffocation by stopping the oxygen flow to the body. The victims experienced irritation in the respiratory organs, fear, dizziness, nausea, and vomiting (Central Commission 84). When the doors were opened, corpses were leaned over and partially seated. They "were pink and some were covered with green spots" (Central Commission 84). Many had been foaming at the mouth and had bloody noses (Central Commission 84). At first, the corpses were burned in large open pits, but eventually the crematoria were built as a more efficient method (Central Commission 16). The ashes of the dead bodies were thrown into the nearby river (Central Commission 115). Living human beings had entered the camps only to become ashes scattered in the water.

As horrifying as the gas chambers and crematoria were, the victims did not suffer for long. However, the now notorious scientific experiments replaced rabbits and rats with living human beings. Turned into lab experiments, these guinea pigs underwent numerous tests and torture, all in the name of science. In *U.S. military tribunal v Karl Brandt et. al.*, these crimes against humanity were spelled out: experiments, all using involuntary subjects, included high-altitude, freezing, malaria, mustard gas, sulfanilamide, seawater, epidemic jaundice, sterilization, spotted fever, poison, incendiary bomb experiments, and nerve regeneration and bone transplantation experiments (Boozer 84). In addition, Nazi doctors experimented with twins. Most of the procedures were unnecessary for science, and all of them were painful for the subjects. Many camp inmates were simply used and then thrown out to the crematoria as if they were laboratory animals. These experiments were perhaps the most dehumanizing aspects of camp life.

In order to prevent the "subhumans" from reproducing, the Nazi regime authorized sterilization experiments. The first attempt at sterilizing the prisoners involved caladium seguinum which was injected or taken orally. This would provide for the sterilization of three-million inmates, while still allowing them to work. However, this process proved to be inefficient because of the waste of time and money. A second method was suggested by Dr. Clauberg which involved a "single injection made from the entrance to the uterus, in the course of the usual customary gynecological examination" (Boozer 86). The scientist would inject an irritating solution into the uterus of a female prisoner (Feig 148). This would allow up to one-thousand sterilizations daily (Boozer 87). A third suggestion was the use of X rays during which the prisoner would never realize what was happening (Feig 144). A thin filter at a short distance would allow the maximum possible a day to be from three-thousand to four-thousand (Boozer 86). Most of these experiments were tried on the Gypsies and the Jews, including young girls.

The Nazi doctors also experimented in numerous other areas to determine the effects of certain injections and to attempt to find cures for diseases. Gangrene was injected into an incision in the leg. Added to the bacterial culture, wood and glass shavings were also injected (Feig 145). After several days, certain patients' wounds were treated with sulfonamide. When a dose of bacillus was injected into a wound, the wound festered and discharged not only pus but also "soaked paper-like pieces" (Central Commission, Vol. II 135). The wounds were then sewn together, and the victim experienced symptoms for years following (Central Commission, Vol. II 135). Another method was to infect a muscle of the leg, which caused swelling and sickness. These infection operations allowed the testing of new pharmaceutical drugs (Central Commission, Vol. II 136). As a result of these injections of bacteria, all were tortured with pain, several died, and the victims suffered from extreme inflammation, sometimes reaching 39.9 degrees Celsius. The inflammation caused loss of

skin and affected the bones, healing only after fifteen months (Feig 146).

The scientists also injected typhus into the bodies of healthy individuals. This disease caused many problems for the German troops in Russia, and the army asked the government for help. A diary entry explains why animals were not used in these experiments: "Since animal experiments cannot provide adequate evaluation [of typhus serums], experiments must be conducted on men" (Kogon 155). In the typhus experiments, involving forty to sixty individuals, a serum was produced from mouse and rabbit livers. In some cases, it was extracted from the entrails of lice or mouse livers (Kogon 155). Although the doctors injected all those involved with typhus, only a few were given the serum. Five out of six of the inmates in the typhus experiments died (Feig 102). The results added nothing to the evidence which had resulted from the animal experiments (Kogon 155).

Mustard gas experiments were conducted in different methods. The first involved direct application of the gas directly to wounds. In the second method, the doctor applied the gas to the arm of the prisoner. Within ten hours, burns appeared on the surface of the skin and spread to other areas of the body. After the sixty days, one inmate died, only to be followed by seven more. The cause of death was the destruction of lungs and other organs (Feig 222). Mustard gas experiments also took place in the gas chamber, and it was injected or given orally to patients (Feig 222).

In addition to testing cures for diseases, the doctors wished to find new ways of healing injured soldiers. The so-called clean operations began at the women's concentration camp Ravensbruck to practice with regeneration of bones, muscles, and nerves. In the first of the operations, a prisoner lay flat on a table, where the doctor subsequently smashed the uncovered legs with a hammer and a chisel. The next step was to put the bones back together, but sometimes the doctor did not use a brace. The wounds were sewn together and sealed with plaster of paris. After a few days the plaster was removed, and the wound was left to heal on its own (Central Commission, Vol. II 137). The second set of operations tested the transplantation of bones, in which the doctor transferred the right tibia to the left side or vice-versa. The doctor also exchanged the fibula for the tibula. Often, the extra bone was simply thrown out (Central Commission, Vol. II 137). In the final clean operation on bones, rectangular shaped bone chips were taken from the fibia of both legs, and later another section of bone was cut out and replaced with the chips (Central Commission, Vol. II 137). The muscle operations involved cutting away part of the thigh muscle, increasing the amount with each session (Central Commission, Vol. II 137). At one camp, Dr. Schmitz enjoyed testing absurd methods of healing for his pleasure. He made a long cut on the upper thigh of the prisoners, then he stuffed it with cloth and straw. He sealed up the wound to see the results. Most of the subjects died, while all of the subjects' legs swelled and turned bluish in color (Feig 76). Least frequent of the clean operations, the nerve experiments tested

regeneration of tissues. The doctors also experimented with bone removal, in which they simply removed a shoulder or hip joint without replacement. These operative tests were all done in the name of science to better the human race, while disregarding the "subhuman" race.

The army granted permission for the doctors to conduct experiments testing various conditions that soldiers undergo. The "freezing" and "re-warming" tests attempted to simulate the icy cold water or temperatures which they may encounter during war. To freeze the patients, the doctors immersed them in a tank of icy cold water for hours until they fell unconscious. They withdrew blood from the neck each time the body temperature fell one degree (Crankshaw 121). In addition, they also stripped the patient naked and threw the inmate into the snow at below freezing temperatures (Feig 56). Dry freezing, however, was the most inhumane method of freezing a prisoner. During this process, the patient lay naked on a stretcher which was placed on the frozen ground. Covered only with a thin sheet, the doctors doused the inmate with water every minute. Later, they stopped using the sheet all together (Feig 56).

With below freezing body temperatures, the next process was rewarming the prisoners. The doctors also used various methods for this to determine which would be most cost and time effective to the army. Sun lamps, hot water bottles, and electro-therapy were all inefficient for the desired needs (Crankshaw 26). The doctors decided to try animal warmth involving the female prostitute prisoners. The frozen inmate was surrounded on either side by two naked women, and the doctors covered all three with a blanket (Feig 57). However, after much examination, they grandly concluded that "a hot bath was the best treatment, but since rescue aircraft could not carry tubs, the aviator suits should have neck protectors, warm waterproof boots" and something should be done to men floating in icy water (Feig 57). It took the doctors hundreds of attempts to determine that the German soldiers should wear protective gear. These experiments were truly used more to torture the patients.

Similarly, the Dachau camp doctors conducted experiments to test the effects of seawater and high altitudes on the body. In the seawater tests, the prisoners divided into four groups. One group received no water, the second received plain seawater, the third received seawater which concealed the taste but not the content, and the last group received seawater from which salt had been extracted (Feig 58). The fourth method, also called the Schaeffer method, was excessively expensive, and so the doctors decided upon the Berka method of concealing the taste. This may seem to be a worthwhile experiment as compared to previously mentioned ones, but the entire process could have easily be simulated in a laboratory (Feig 58).

The high altitude experiments investigated the human endurance at high altitude levels, and the information was reported back to the German army (Feig 55). These tests used prisoners to discover what physically and mentally happened to pilots who lost oxygen at high

altitudes (Crankshaw 26). To simulate the conditions, the German army supplied the doctors with a decompression chamber. The results were ghastly. The prisoners perspired and convulsed, falling into unconsciousness. During many tests, the victim's lungs ruptured (Feig 55). The patients experienced insanity and began pulling out their hair. They scratched their faces with their fingernails, and finally they screamed as an attempt to relieve the intense pressure in their eardrums (Feig 56). These experiments transformed camp prisoners into animals who kicked and screamed to survive. After most tests, the doctor selected the inmates for the gas chamber.

The Nazi scientists and doctors also employed children in their experiments, after which they would become increasingly ill (Eisen 48). At the Neuengamme camp, the scientists imported a group of twenty-five children ranging from ages six to twelve. Three weeks after their arrival, the doctors began tuberculosis experiments. The doctors first made an incision into the children's skin, rubbing tuberculosis bacilli cultures directly into the open wound. Days later, the skin became red and swelled, and each child experienced high fevers (Feig 211). The scientists removed the children's lymphatic nodes, and finally they dressed the wounds and sent test tubes to Berlin. Every couple of weeks, the children returned to the laboratory and were injected with a new culture of tuberculosis from their own node. By the fourth month of testing, the children's lungs began changing, and as the sixth month approached, large cavities appeared in the lungs. When the experiments were over, the doctors sent these children to the gallows or directly to the crematorium (Feig 211).

The situation was slightly different for twin children. The infamous Dr. Mengele, called the Angel of Death by inmates, was especially interested in the genetic make-up of twins. His experiments aimed at tests that would prove Hitler's racial theory. Ultimately, he wished to create the ideal human race (Lagnado 61). Each day the twins appeared naked and blood was taken. They were all "marked, painted, [and] measured" while Mengele compared every body part of one to that of the twin (Lagnado 64). His eye studies forced children into unendurable pain. The doctors inserted drops of chemicals and also needles into the victim's eyes (Lagnado 64). These studies resulted in temporary blindness for the child (Lagnado 66). Transfusions and psychological tests were frequent, but most gruesomely, the twins were subjected to various surgeries. Mengele removed the twins' organs and limbs, injected their frail bodies with deadly viruses, and attempted sex change operations (Lagnado 70). Finally, Mengele killed the twins and analyzed their organs (Lagnado 70).

Although it may seem that the worst is over, the sadistic tendencies of the camp doctors and staff may surpass all of the above. The SS men and doctors enjoyed receiving souvenirs made from dead prisoners' body parts. When a man or women with a tattoo entered the camp, the guards noted and marked the person so as to retrieve the body after the gassing. The tattooed skin was stripped from the body immediately following the gas chamber,

and it was then processed into book covers, gloves, luggage, and lamp shades (Feig 103). The wife of one head SS man, Frau Koch, had a lamp which was made of human bones, and the lamp shade had been produced by the tattooed skin of an inmate (Feig 103). Many other SS guards used the shrunken head of the prisoners as paperweights (Abzug 128). Organs removed during an experiment were stored on the shelves in a preserving liquid, and later, skeletons and the organs were shipped to scientific departments of the universities or to museums (Feig 103). Dr. Hirt of the Natzweiller camp began a project entitled "Securing the Skulls of Jewish-Bolshevik Commissars" (Feig 223). He murdered the Jewish prisoners and then enclosed the severed head in a tin box with a solution (Feig 223). These unimaginable atrocities robbed the victims of their dignity even after death, for their bodies were reduced to mere souvenirs.

The Nazi concentration camps stripped their victims of every ounce of dignity. Those who survived were forced to sacrifice their morality. They hardened themselves to the tortures of their friends and families, and many became completely uncompassionate (Des Pres 131). Their bodies became walking skeletons in a matter of months. As the prisoners' physical states deteriorated, their mental states regressed to an animal nature in a true life race for the survival of the fittest (Kogon 305). The camps reduced the prisoners to a level at which the only method to survive was through stealing, and eventually cannibalism. When the camps were liberated, many died of pure joy. Others died because the food given to them by the soldiers was too overwhelming for their bodies, which were used to digesting primarily liquids. Living in excrement and disease, the inmates lost all sense of themselves. They lived each day as a struggle to make it to supper time. Deprived of their family, religion, and nutrition, many succumbed to the ever-present death that enveloped the camp. Over fifty years later, these victims are still trying to end the pain and suffering caused by the camps. The nightmares of the concentration camps may never end until they are reunited with their loved ones in death.

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Women with the Spirit

Female Roles in the Native Mythology of the Southwestern United States

by Aimee Cleckler

As long as humans have searched for truth, they have struggled to understand the seemingly inexplicable questions concerning origin and reasons for existence. The most ancient inhabitants of North America turned to their concepts of the physical and spiritual worlds to find the solutions to these mysteries. Native American philosophy centers on the idea that all things natural and spiritual are innately, cyclically involved. The convictions of these cultures evolved into myths that mirror the structure and values of the societies from which they come. Since social structure varies between Native American tribes, the importance of male and female roles in their mythology varies as well. It is impossible to examine these tales without recognizing the varying degrees of importance that the stories place upon the roles of women. In particular, the native tribes of the Southwestern United States, namely those of the Mesa, Desert, and Plains tribes, provide a substantial body of literature for an analysis of the female roles in myths of emergence, creation, and recreation or re-population.

The idea that the earth is female and the sky is male is central to most Native American mythology. In his book *North American Indian Mythology*, Cottie Burland describes the Sky Father as the "prime deity" who possesses an "all-encompassing presence" (68). The sky, universally understood to be the source of natural disasters and inclement weather, seems to play a more detached and impersonal role than that of Mother Earth. Although Mother Earth may be depicted as a provider and sustainer, she is by no means a passive entity. The Earth Spirit can be active, decisive, and even violent. The book *The Red Swan: Myths and Tales of the American Indians* recounts a creation myth of the Jicarilla Apache, a desert tribe who believes that the Earth Mother and the Sky Father are husband and wife (Bierhorst 52).

This idea of partnership between the sexes is also present in the stories of other Southwestern tribes. A collection of Native American lore edited by Erdoes and Ortiz recounts the Zuni Pueblo tale in which *Awonawilona*, the "one who contains everything," impregnates the (female) ocean. The ocean then divides into two beings: the Sky Father and the "Earth

Mother of Four Directions," who in turn procreate and populate the world (*American Indian Myths and Legends* 120). In this tale the Earth Mother seems to play a role equal in importance to that of the Sky. She provides a great many opinions on how people should be created, and her suggestions are appreciated by those involved. She is represented as a protector of humankind with a warm and nourishing character. The Sioux Indians also express, to some degree, this concept of a nurturing Earth Spirit. In *The Way of the Earth: Native America and the Environment*, Bierhorst quotes Luther Standing Bear, a Lakota Sioux, as saying, "According to the tribal legends the [Black] Hills were a reclining female figure from whose breasts flowed life-giving forces, and to them the Lakota went as a child to its mother's arms" (102).

In some of the tales in which women are the creators, there is no mention of a male figure at all. The Hopi Pueblo tribe of Arizona tells a story of a pair of *Hurving Wuhtis* (Hopi female goddesses) who lived in sacred *kivas*, one in the East and one in the West. They became the designers of mankind, and created everyone in couples (Erdoes, Ortiz 115). One of the most captivating figures among such female creation figures is *Tse che nako*, or "Thought Woman." Tales of this earth spirit have been incorporated into the stories of both the Pueblo and the Desert tribes, who share a similar spiritual heritage. Their stories suggest the manner in which these groups viewed the women in their tribes. Paula Gunn Allen, author of *Grandmothers of the Light*, draws a connection between the essence of femininity and the "creative power of thought," which may have been a consideration of the myth-makers of ancient times (Bierhorst 93).

Unlike the women in some myths, Thought Woman does not embody the earth, but lives inside of it. She is referred to by different names within her various parent tribes: Spider Woman, Changing Woman, or White Shell Woman. The name "Thought Woman" best describes her reputation, however, since she is believed to have thought everything into creation. This "creative power of thought" is a self-power. Ake Hultkratz refers to it as "emanastic speculation," where "from himself a primal being provides material for the whole universe" (*Religions of the American Indians* 31). Herein lies the origin of the name "Spider Woman." She is a being who has the Power, but is not one with it. She can be detached from the Power, like a female spider who spins her web and then cuts herself free. Paula Gunn Allen writes that in the creation of earth, this power folded in on itself like the convolutions of the brain. The Power was in the folds of the earth "like a mother holds new life" (*Grandmothers* 35). The Pueblos did not believe that Thought Woman directly created mankind, but that she worked on earth through two sisters, Naotsete and Uretsete. This myth inspired the idea of medicine bundles and their strength which originates through personal power. Thought Woman created the sisters from

her medicine bundles, and they, in turn, sang all people from theirs (22).

Just as Thought Woman is omnipotent but is not power itself, there is often a similar distinction made between the earth and the Earth Mother. The Jicarilla Apache believe in a female earth-creator who is the daughter of Earth herself and resides within her mother (*The Way of the Earth* 93). Similarly, Navajo lore explains that the female being that is in the earth takes care of the things on the earth. The mothering, sacrificing manner which the storytellers attribute to the Earth Mother is sometimes represented more literally. She is often portrayed as a woman who is protecting or concealing an unborn child. This idea is used in Native American mythology to represent a place under or inside the world that is womb-like. In a Zuni creation story, the Sun Father and the Foam Mother give birth to a set of twins who are named "the Preceder" and "the Follower." Instead of traversing worlds to reach the present, the twins travel from womb to womb to womb (Erdoes, Ortiz 122). This concept of becoming, of progressing, sets the stage for another group of myths that are directly related to myths of creation.

Feminine creative power is inherent in the stories of emergence as well as in stories of the origin of the Native American world and people.

Emergence myths are a type of creation story, and in some cases creation is a prerequisite for emergence. Predominantly agrarian cultures tended to involve the idea of emergence from an underworld in their stories more often than hunter or hunter-gatherer societies. A probable cause of this correlation is their awareness of the earth's power to create life from itself in the form of food. A perfect example of the connection that is made in native myths between the harvest and emergence is a myth of the Pueblo people in which they are led to the world of light by Mother Corn, who represents plant life (McGregor 161). The Arikarans also claim a Corn Mother, who was thrust into the underworld by Thunder. Her duty was to lead the small race of Native Americans, who had been created out of corn, to the Earth above. Before she returned to live with the Sky Father, she taught them about medicine bundles, the stars and the moon, and how to grow maize (Burland 69). Although the Plains Indians are thought of primarily as hunting tribes, they were also successful in agriculture.

The Mandan, Arikara, and Sioux tribes all recount stories of emergence from an Earth Mother. John McGregor relates a tale in which the Mandan people are climbing one by one up a ladder of vines

from the underworld to the light. One of the women attempting to climb proves to be too heavy, and the rope breaks under her weight, confining everyone left behind to the darkness (161). This theme is apparent in a Navajo myth as well, which incorporates the concept of emerging through successive worlds. In the first world, there existed only the First Man, the First Woman, and Coyote. Upon arrival in the Second World, the Sun tries to make love to the First Woman, and great conflict ensues. In the subsequent world, everyone decides that it would be better if the two were separated (Burland 89). Feminine creative power is thus inherent in the stories of emergence as well as in stories of the origin of the Native American world and people. That women possess this natural power is one reason that they are so often represented as creators and leaders as well.

Another way in which tribal women have entered the lore of various cultures is through their capabilities to recreate and renew. Women's menstrual cycles, like the harvests which the women oversaw, possess a periodic nature that is symbolic of this creative power. The most respected Navajo deity is *Estanatlehi* (who may be the same as Changing Woman), the "helper of mankind" and "the woman who recreates herself" (Burland 137). Depending on their tribal origin, stories of renewal can also be represented through death. Thought Woman, a being who has many names and represents many things but is always the same woman, dies and is born again with every cycle of the seasons (Bierhorst, *The Way of the Earth* 263-4). The Hopi, who believe in the creative powers of Thought Woman, trust in a form of reincarnation that is directly related to their constant communion with the earth: (according to *The Handbook of the North American Indians*) after death a person's spiritual essence or *navala* returns to the earth as rainfall (9: 577). This belief reaffirms the intimate connection between the lives of Native Americans and worlds that are unseen. The spirits of the dead remain in a close relationship with Mother Earth, who in turn is directly related to all of the earth's inhabitants.

Since women have been granted the privilege of bearing children, myths of renewal involving female entities often focus upon re-population or rebirth. In a myth told by the Mandan people, Lone Man, a stranger to the tribe, wants to become one of the Indian people. Lone Man finds a young Mandan girl and tricks her so that he can enter her womb and be born a second time (Burland 77). Most re-population myths, however, treat women and their reproductive blessings with more respect. It is told that when more people were needed on earth, Estanatlehi shook her breasts and mixed the milk with maize flour to mold and shape a new nation. As time went on and still more people were needed, she mixed a bit of skin from the center of her breast with flour, and more people were created (100).

Most tribes from the southwestern United States recognize in their myths, at

least to some extent, the abilities that their female members possess in the realms of creation and leadership. These southwestern myths have been shared for generations by those who have a direct involvement with religious practices and ceremonies. Therefore, in most of these tribes, the myths are predominantly male visions of their societies. The myths of the patriarchal cultures of the Plains Indians reflect their common views of the women in their tribes. Arikaran, Cheyenne, and Pawnee myths all convey the idea that women are fairly insignificant, at least in creative and spiritual matters. The Cheyenne, in particular, lived in a very ordered, male-dominated society. They hold one male creator, whom they referred to as "Great Medicine," in highest esteem (Erdoes, Ortiz 111). *The Old West: The Indians* claims that feminine subservience and chastity were highly valued in Cheyenne society (88). Cheyenne women who lost their virginity before the appropriate time were made to go through a "renewal" ceremony, so that they could be recreated "like the earth" (Bierhorst, *The Way of the Earth* 92). In the aforementioned rebirth myth from the Mandan tribe, the *naiveté* of a young girl is manipulated for a man's selfish purposes. Plains myths describe a reliance upon an Earth Mother but never mention a figure similar to *Tse che nako*, the assertive, powerful female figure found in the myths of both the Mesa and the Desert cultures. The Arikaran Corn Mother is a leader and a teacher, but she acts under orders from a male god and then returns to his dwelling in the sky.

> Since women have been granted the privilege of bearing children, myths of renewal involving female entities often focus upon re-population or rebirth.

Mesa tribes, on the other hand, were matrifocal and more peaceful than the Plains and even the Desert tribes. The concept of Thought Woman is indigenous to the Pueblo tribes. Perhaps because of the tribes' rough conditions and the suffering that the people had to endure, Thought Woman was an attempt to venerate the native women who had grown wise from their long years of struggle. The mythology of the Navajo, who are considered to be "students" of the Pueblos, shared many of these common themes (Owen, Deetz, and Fisher 96). The Desert tribes represent a *via media* between the warring hunters of the Plains, and the creative, agricultural peoples of the Mesa. Unlike the Plains society, the Navajo social structure is not distinctly divided into groups by sex, age, or division of labor,

except at certain times in life. Gunn Allen describes the Navajo's view of Changing Woman as "independent, resourceful, and capable" (*Grandmothers* 71).They express an awareness of this Great Goddess and her importance in spiritual things. The Yuma, however, like the Mandans, tell a tale in which a male creator forms humans out of mud, first man and then woman (Erdoes, Ortiz 77). The Pima and Apache tribes of the desert also exhibit similarly patriarchal social views which are reflected in their mythology.

Different tribes have developed their own cultural myths and decided what roles women should play within them. Whether positive or negative, exalting or repressive, an overwhelming presence of feminine spirit is present in the tales of every Southwestern tribe. Paula Gunn Allen writes that Indian societies are indeed "woman-centered" and have been for thousands of years (*Sacred* 2). Descending yet from these ancient weavers of myths are generations that search for meaning in their lives, as individuals and as members of a tribal system, and that find what they are looking for in the lore of their culture. In *The Sacred Hoop*, Allen also notes that as the North American tribes become more and more acculturated and adopt western doctrines of male domination-- such as governmental rule, or the idea of Christianized creation-- their myths are slowly changing as well (41). Is it possible that simple evolutionary forces have transformed the formerly female Hopi Spider Woman into a male figure? Perhaps the changes that will come about from transforming the female deities of the Zuni, Navajo, and Keres Pueblo are positive and praiseworthy. It seems, however, that altering archetypes that represent positive female strength and spirituality would be detrimental not only to Native Americans but to any society that so desperately needs such examples of true nurturing and inspiration.

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Civil Rights Leaders Had a Dream: The Media Made that Dream a Reality

by Gina Maise

Mass media has long been held as an independent and powerful force in society. Even as early as the eighteenth century, the immense power of the media was recognized. One anonymous eighteenth century English writer wrote: "There are three estates in Parliament, but in the reporters' gallery yonder sits a fourth estate more important than [them]. It is not a figure of speech or witty saying; it is a literal fact, very momentous to us in these times" (Donahue 118). It is here that the conceptualization of the media as the fourth branch of power was first articulated. Even traditional newspaper names originated from this belief. For example, the word *tribune*, employed by many widely read newspapers, including the *New York Herald Tribune* and the *Chicago Daily Tribune*, originated from the Roman-era term which translates to "champion of the people." Ultimately, the media has become the defender of justice in present day society, whether in reality or as an imaginary ideal. In fact, the media is often referred to as the "forum of the people" and the "freedom seeker." Hence, it is only logical that those who have been oppressed, alienated, mistreated, or simply ignored, would take their issues to this all-powerful, independent force. With this thought in mind, leaders of the Civil Rights movement manipulated the news media in order to contrast their peaceful nonviolent tactics against the brutality and violence of segregationist bullies so as to arouse emotion and support throughout the nation. It is this manipulation of emotion that would eventually convince political leaders to propose and pass Civil Rights legislation (118).

Much of the media's power lies in its capabilities of newsmaking, interpretation, persuasion, socialization, and agenda setting. It is these capabilities, combined with other strengthening characteristics, which make the media the greatest ally for groups seeking change in our society. Perhaps more than any other group in recent history, leaders of the Civil Rights movement recognized, utilized and manipulated this power to bring the campaign for Civil Rights to national attention and, through this attention, they coerced the government into formulating legislation protecting the

African-American's rights as envisioned under the Constitution.

Before one can begin to describe the role the media played in the Civil Rights movement, however, it is first necessary to understand the functions and effectiveness of the media in general by a thorough examination of its above enumerated capabilities. Newsmaking is the process of deciding who or what is newsworthy and allocating precious newspaper space and television time accordingly. It is in this processs of selection that the news media exercises its strongest effect on the masses--by generating awareness and increasing information levels. The power of this ability to inform and enlighten the public was, perhaps, best summarized by foreign policy expert Bernard Cohen in the first book to ever assess the effects of the media on foreign policy. He wrote, "The mass media may not be successful in telling people what to think, but the media are stunningly successful in telling their audience what to think about" (Dye 149). The author points out that "without media coverage, the mass public would not even know about these personalities, issues, or events" (146). This power of selectivity is critical. The media has the power to certify, to selectively inform, and to manipulate the emotions of the public. This power permits the media to provide us with images of ourselves, our world, and our time. Nowhere is this capability greater than in television--a fact that prompted sociologists Mankiewicz and Swerdlow to write: "Television is the greatest certifying agent of our time" (McLeod 74).

Television is the major source of information for the vast majority of Americans. According to one poll conducted by the Television Information Office, television is the source of most people's news. Statistics show that nearly two-thirds of the public testifies that television "provides most of my views about what is going on in the world" (Dye 143-144). However, out of all the tremendous amounts of information in the world, we only hear what the media selects for us to know. They determine what is "news." This process of selection is the root of their power. There are only twenty-four non-commercial minutes of network evening news. Consider for a moment how miniscule this actually is in relation to how much information there is in the world. It is important, then, that we realize the media's versions of our world are selective versions or, as sociologist Joseph Klapper states, "special versions of reality" (Klapper 26). In addition, the media also has the power of interpretation--deciding the "angle" from which the story is to be written or told. Through this personal point of view, they provide the masses with their own explanations and meanings for events and personalities (Dye 146).

The media is also instrumental in socializing the masses. Election night provides a good example of this process. The media's coverage of elections illustrates how democracy works and reinforces and encourages political participation. The media also influences what products we purchase through advertisements, and even influences our lifestyles by introducing and ascribing

certain ways of life. In fact, one might venture to say that the media defines social reality and social norms through entertainment programs. For example, sitcoms "with cute black children" discourage prejudice and encourage tolerance. Others depicting unmarried couples living together establish new sexual mores by glorifying or, at least, legitimizing sex outside marriage, and, now, television has even begun validating homosexuality by depicting "well-adjusted, likable" homosexuals. According to Dye and Zeigler, television executives often congratulate themselves on such socially progressive themes and how these are reshaping society (Dye 146-147). It is clear that social life is definitely changing in our society. The question is: is it changing by itself or are the changes due to television's influence on socialization? At the very least, one must admit that the media is a contributing factor to changing attitudes in society through its setting of certain standards of life (146-147). This ability to fashion our attitudes has led many researchers to conclude: "Journalists . . . shape the prism through which we view the world" (Donahue 119).

The media often plays an especially important role in the socialization and acculturation of children. The only question is, to what degree? The media's exact influence is difficult to determine because it is often attenuated by the influence of family, school, and peer groups. However, these groups are all themselves influenced by the media (Klapper 15). The media teaches children about different kinds of social roles and expectations that influence their relationships in family, work, and numerous other areas of life. The media also accepts some responsibility in teaching values, whether we agree with the values they promote or not. In fact, many people must believe that the media plays an at least somewhat effective role in this process as demonstrated by the controversy over television's effect on children (26). It is fear of this effect that recently led television broadcasters to implement a new ratings system to better help parents monitor what television programs their children watch.

The media also holds the power of persuasion, which is the reason politicians now hire advertising and public relations specialists to direct sophisticated media campaigns that manipulate coverage or bypass the media to take their message directly to the people. They know that the media plays a very influential role in voting behavior and that the candidate with the most coverage usually wins. In fact, the ability of incumbents to attract more more news coverage than their opponents largely contributes to their overwhelming sucess in re-election bids. Incumbents are already news figures, and thus greatly benefit from additional, free media attention while their opponents remain in relative anonymity (Dye 147).

The attention media sources place on certain people, issues, and events, in turn, generates public concern and, finally, political action. It is this phenomenon that gives the media its real power--a key role in political decision making. Defining the issues, presenting alternative policies and focusing on political, economic, or social

crises are critical aspects of national policy making. This is often referred to as the media's power of "agenda setting." "Conditions . . . *not* defined as 'crises' or . . .'problems' by the mass media never become policy issues" and, therefore, never find a place on the agendas of political leaders (Dye 152). Political leaders only address and adopt the issues that the mass media makes important (152). These issues are then placed on the agendas of our decision makers, who, in turn, must develop solutions in order to maintain their popularity and secure re-election. Clearly, the power to define what is a problem or crisis is then critical to the process of policy making. In fact, one might even say that determining the nature of the problems is actually more important than deciding what the solutions will be.

It is a common misconception that policy issues develop due to their own natural importance. They arise due to the media's role in creating issues, dramatizing them, referring to them as crises, and pressuring the government to do something about them. Thus, they make the issues important to the electorate through the amount of attention they devote to them. Research has shown that "the issues that receive the greatest attention in the mass media are the most likely to be viewed by voters as important" (Dye 148). This attention then leads to the media's agenda setting power which is, ultimately, the power to determine which issues will be given attention, thus importance, and which will be ignored (Dye 148-149). The media's agenda setting power is so great that Klapper observed: "It has increasingly seemed as if it is the mass media which defines problems and issues and sets agenda, while politicians and political parties merely respond to the media's consensus view" (Klapper 31).

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In fact, the media is not only involved in setting the agendas of political figures but also in arranging the importance of the issues set forth on the agendas by allocating more time and coverage to certain issues. This ability to dictate importance to the public was evidenced in several studies of election campaigns conducted by media scholars Maxwell E. McCombs and Donald L. Shaw. According to their studies, they repeatedly found that the "order of space given to issues in media content was found to be predictive of changes in the order of importance attributed to issues over the course of a campaign" (Klapper 28). The media selects an issue and places a certain amount of importance with it which determines its importance to the people. The issues are then made important to elected officials who depend upon the popularity of the populace and, in order

to win and maintain their popularity, must address these issues and attempt to solve the crises (Donahue 119). In summary, the media may only be equipped to record the past and present, but in doing so they can affect the future.

Although the media's power lies primarily in the above stated capabilities, other factors also contribute to its effectiveness. Among these factors is the level of trust society places in the media. In our society, we are completely dependent upon the media, particularly television, for most of our knowledge about the outside world. Because of this dependence, we have virtually no alternative but to accept the media's impressions of all of the things that we have not witnessed or experienced ourselves. This dependence has led to a certain level of blind trust.

In this relationship between society and the media, television is the most trusted because it is visual. We are more likely to believe what the television media reports because evidence lies in their pictures. After all, seeing is believing; thus, seeing pictures adds to the source's credibility (Dye 161). In fact, according to studies done by Mankiewicz and Swerdlow, "most Americans do not believe in the reality of any event or emotion that they have not seen, at one time or another, on television" (qtd. in McLeod 75). To an even greater extent, they add that, to many people, if they believe that an event has occurred, they will decide that they have seen it on television. Thus, according to a national survey, over 70% of Americans actually believe that they saw President Kennedy's assassination live on their homescreens. In truth, no one saw it live on television; the general public did not even see it on film until the 1976 release of closely edited portions of the Zapruder film (McLeod 75). Society also places a great amount of trust in television news because of its rapport with news anchors. Television newscasters, in general, have high credibility with the general public. In fact, "their opinions are crucial in shaping mass opinion" (Dye 161).

Television is also a very effective means of communication because of its ability to reach many people at one time: "They are, after all, media of *mass* communication, which daily address tremendous cross-sections of the population with a single voice" (Klapper 13). There is an enormous amount of power in this ability. Because of this single voice, it is not insignificant or unimportant to realize that:

> The media have rendered it possible, for Americans from all social strata to laugh at the same joke, nor is it insignificant that total strangers, upon their first meeting, may share valid social expectations, or that small talk about Lucy and Desi . . .will be mutually comprehensible. (Klapper 13-14)

Surely such influence can not be restricted to only things of minimal consequence but must also be expanded to things of greater importance. Is it possible, if not highly probable, that the mass media has much more dramatic and extensive effects in other areas as well (14)? In fact, the news media's,

particularly the television media's, tendency to "amplify, polarize, and exaggerate incidences increases the likelihood of incidents or issues getting noticed and often even mobilizes society against a supposed threat" (27). It is this tendency that elevated the cause of civil rights to the concern of the American public.

The media's ability to attract and direct attention to problems or people in ways that can favour certain groups and, likewise, grant negative attention to rival groups is most important to any group seeking change or fighting for a cause. The media also has the ability to grant status or legitimacy to a cause and can be an important vehicle of mass persuasion and mobilization by attaching importance to issues, as well as by communicating their "news" and opinions to large audiences quickly (Klapper 33). The television media even allows these groups to convey emotions, as well as information, through its visuals. For example, clips of "police dogs attacking blacks, people loading sacks of dead American soldiers into helicopters, angry crowds burning and looting in cities" generate strong emotions, as well as support (Dye 144). This power of generating emotions with pictures was particularly vital to the success of the Civil Rights movement because, while many people in the country were not sympathetic to offering blacks equal rights, their sympathies were won by the vivid pictures of violence which tugged at their consciences (144).

Civil Rights leaders could not merely be concerned with their demonstrations and marches alone because if these events had received no news coverage, they would have been in vain. No one would have even known about these occurrences except for those present, which most likely would have only been the protestors and the most ardent of their segregationist opponents. Therefore, no progress could have occurred from their acts of courage; their actions would have essentially been futile. With coverage, however, they could take their plight to those who might care, provided this audience knew about the injustice. By bringing the injustice to their attention and making the cause important to others, Civil Rights leaders could eventually coerce the government to become involved and formulate solutions to combat the inequality. It was, therefore, necessary that movement leaders tailor their marches and demonstrations in such a way as to attract and maintain the media coverage necessary to demand national attention. To gain this media attention, as well as appeal to the American conscience, leaders needed to depict their cause with peace and nobility and juxtapose this with hate and violence from the opposition. Such vivid contrast is what the media demanded to see, as well as what the people of this country needed to see, in order to dramatically change its majority's view of blacks. In other words, the American public had to be shown something harsh enough that even though they might not want the Negro to have equality, they would be unable to agree to his being beaten or killed simply because of his race. Clearly, it was the contrasting of the Negroes' nonviolence

with segregationist violence that would compel the country to attack segregation from a moral position which is, perhaps, the only way the practice could ever have been terminated.

For all of the above reasons, it is only logical to credit leaders of the Civil Rights movement for recognizing the importance of the media to their cause and utilizing it to their full advantage in order to elevate their struggle for equality to national prominence. Moreover, Civil Rights leaders not only recognized this importance, but, like so many other groups seeking social change, they manipulated situations so as to capture the media attention and support necessary to bring about this desired change.

Anyone who is searching to raise their cause out of obscurity in order to achieve social change must first meet certain criteria, always remembering that news programs fight for ratings like any other television program. This is why the media looks for dramatic events that will capture and maintain people's attention. One might even say that the news has an entertainment factor that is heavily evidenced in the type of news that airs: "The more bizarre, dramatic, and sensational the event the more likely it is to attract media attention. It may be a march or demonstration, a dramatic confrontation, an illustration of injustice, a press conference, or a walk down a ghetto street" (Dye 146). Regardless, an event worthy of television time must provide an opportunity for dramatic pictures because "without good visuals, topics or issues are often ignored" (146). There is also "a profound tendency in news media coverage to. . .make events follow predictable 'storylines' complete with heroes, villains, bit parts, and character actors" (Drummond 6). Television, therefore, looks for easily identifiable heroes and villains, moral imperatives, and solutions that are implicit in the statement of problems. Television also demands "action and tight stories for its 15-minute newscasts" (6).

Another criteria of the news concerns the type of news the media seeks to tell. In this, the media clearly has a "bad news bias" (Dye 150). Bad news is big news because it is dramatic and sensational. Scandal, sexual deviance, and violent crime (exhibited during the Civil Rights movement) capture audience attention; therefore, that is what the news most often depicts. Negative news stories, in fact, outnumber good stories ten to one (Dye 150-151), and the more viewers, the higher the ratings. This means more advertisers and more profit for the networks. Ratings and profits, then, clearly apply to news programs just like any other television program. Undoubtedly, this puts a new perspective on the way in which one views television news (Dye 152).

The Civil Rights movement quickly found its voice in the media because its dramatic story easily met all of the media's stringent requirements. In fact, "The Civil Rights movement was made to order for a storyline: Negroes demand the end to legalized segregation; massive white resistance says 'never'; Negroes heroically mount nonviolent civil disobedience; white segregationists react with violence" (Drummond 6). This

storyline garnered media coverage and grasped the attention of the American public, as well as ennobled the cause of blacks. According to Henry Hampton, executive producer of the "Eyes on the Prize" series, "For one decade in this century, television played a key role in transforming our society, in breaking down the legal barriers to first-class citizenship for tens of millions of Americans" (qtd. in Drummond 6).

The Civil Rights story also fit the media's requirement of providing clearly distinguishable heroes and villains. Their story was composed of a series of "morality plays in which the good guys and the bad guys could be instantly recognized," Hampton said (qtd. in Drummond 6). The Civil Rights movement could easily be portrayed as a contrast of good and evil. In fact, one of the trademarks of news film from that period was "images swinging wildly in the frame as the cameraman was pushed or beaten by white segregationists" (6). During the Civil Rights movement, there were clear underdogs, "clear cut villains," and "sympathetic victims" (Radolf 26). Thus, according to Hampton, the key component of maintaining such symbiosis between the press and movement leaders was the movement's biblical, nonviolent, and non-threatening stance. Hampton also notes that when storylines become problematic with intangible issues like poverty, press coverage disappears. According to Hampton, this is why King lost media coverage when he began his fight against poverty after the Civil Rights victories. "The easily identifiable heroes and villains had disappeared" and the issues and solutions were not clear cut anymore (Hampton qtd. in Drummond 6).

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The Civil Rights movement also fulfilled the media's "bad-news" requirement with all of the violence characteristic of the movement.

The print media played an earlier, though lesser role in the movement's development and transformation. "Journalism has every right to be proud of its role in the transformation of America," columnist William Raspberry said (qtd. in Radolf 26). According to Raspberry, newspapers got the movement going and television gave it real momentum because "Television brought the cruelty of Jim Crow . . . into the nation's living rooms" (26). It was this cruelty which brought about changes in public opinion, and "without changes in public opinion about discrimination, demonstrations would not have led to legislation. Without demonstrations, it might have been much longer before there were changes in public opinion" (Burstein

170).

While it is clear that Civil Rights demonstrations met the criteria of action, violence, and clearly juxtaposed heroes and villains, it should be recognized that this was not purely by chance. Though it should not be assumed that Civil Rights leaders purposively meant for harm to come to any of their followers, it would be naive to assume that they desired no violence to occur at all. This is because the element of violence was key to the amount of coverage protestors received, as well as to arousing emotion and support from an American conscience that only had the ability to care when physical harm was shown them. It is for these reasons that "movement leaders made the story and led the press to it. The heroism of their fighters against injustice was presented against a backdrop of violent segregationist buffoons" (Raspberry qtd. in Radolf 26). In the process of "making the story," leaders like Martin Luther King carefully considered time, place, and characters in planning demonstrations and marches that would be "worthy" of news coverage.

One of the first cases in which the importance of the press was realized and utilized to full advantage concerned the murder of a fourteen year old boy in Mississippi. Emmett Till was brutally murdered for little more than speaking to a white woman. His body was sent to his mother unrecognizable. He had a bullet in his skull, one eye gouged out, and his forehead was crushed in on one side. Till's mother arranged for an open casket funeral and for the press to attend. She wanted "to let the world see what they did to my boy" (Williams 44). National media attention was thereby gained, and it followed the murder trial from that point forth, uncovering all of the injustice the blacks faced in the South. Despite the testimony of many witnesses, the two men were found "not guilty." The nation was appalled. For the first time, with the help of the media, Southern brutality and injustice against the black race had gained national attention and aroused emotion, shock, and disgust around the country. The media made the trial a national issue and editorialized bitterly against the verdict. Some newspapers compared the events in Mississippi to the Holocaust of Nazi Germany. One writer even called Till, America's Anne Frank. The media's attention and interest in the case proved influential on many people's attitudes and opinions. A former United Nations delegate was moved to say, "[T]he shattering damage done to our nation's prestige in world affairs by the Mississippi jury rates each of them public enemy number one" (52). Through the media's extensive coverage, the nation was seeing the injustices in the South, many for the first time. The symbiosis between the press and Civil Rights leaders was formed. The press had found a "worthy" story in the movement because it carried violence and room for sensationalism, while Civil Rights leaders had found the voice they needed to spread their message and garner support for their cause.

Although movement leaders recognized the importance of the media after the Till case, they believed that they could maintain that same attention on all of their demonstrations. This notion, however,

collapsed after the Albany disaster. Confrontation is required to attract media attention and confrontation was averted in Albany by Police Chief Laurie Pritchett. Pritchett had read King's book and from that had devised a way to avoid confrontation and the media "by being nonbrutal [in handling the protests]" (Williams 169). Reporters' attention was then easily diverted elsewhere; thus, little time or space was donated to Albany coverage. Chief Pritchett congratulated himself: "[W]e met nonviolence with nonviolence and we are indeed proud of the outcome" (170). The *New York Herald Tribune* called Albany "one of the most stunning defeats of King's career" (170). This incident left both movement participators and leaders discouraged and depressed. One writer wrote that, in the next town, one would find people saying "Remember Albany" (179). Because of the Albany setback, King hesitated in determining the next town to target because, in order to retrieve all that had been lost in Albany, the situation had to be one which would attract and maintain serious media attention.

Reverend Fred Shuttlesworth wanted that town to be Birmingham. Dr. King's popularity was suffering somewhat after the Albany disaster. Therefore the next target had to result in a major feasting of national attention. Birmingham was already infamous for the 1961 Mother's Day mob attack on the Freedom Riders where the police never even appeared. The city was, in fact, already known nationally for this kind of violence. It had even earned the nickname "Bombingham" because of the eighteen unsolved bombings in black neighborhoods between 1957 and 1963. The city's commissioner of public safety, Bull Connor, often sent his men to break up black political meetings and was known not to employ police action when violence was taken on blacks. For example, Reverend Shuttlesworth's wife was once stabbed on a public street with cops present, yet no police action was taken. Shuttlesworth told King, "I assure you, if you come to Birmingham, this movement can not only gain prestige, it can really shake the country" (Williams 181). It was this comment which convinced King to make Birmingham the next target for the movement's offensive. King, along with other movement leaders, vowed Birmingham would be different than Albany and labeled their strategy Project "C" for "confrontation" (179-82).

The idea behind Project "C" was to attract national attention through actions which included King defying the injunction to prevent his participation in any Birmingham demonstrations. King had made the mistake of following a similar injunction at Albany and had lost the news coverage he needed; King refused to make a similar mistake in Birmingham. Project "C" "called for King to subject himself to arrest . . . on . . . Good Friday" (Williams 184). This provided the opportunity to gain media attention. However, when King was released from jail eight days later, the press' stirring over his arrest and "Letter from a Birmingham Jail" had begun to wane. The movement needed something else to regain the momentum it had received from King's arrest.

James Bevel, a veteran of the student sit-ins in Nashville, devised the strategy which would recapture the movement's lost momentum. Bevel advised King to use children in the next phase of marches, because "the sight of young children being hauled off to jail would dramatically stir the nation's conscience" (Williams 188-189). Schoolchildren were then recruited from all over Birmingham, ranging from ages six to eight. The children were all motivated to march after organizers spoke to them and showed them a film about a student sit-in movement. King, himself, even addressed the youngsters, telling them how proud he was of their courage and devotion. The first day of the children's march, 959 children were taken to jail. Many across the country realized, knowing Bull Connors' use of violent tactics to quell demonstrations, that the children could very easily be harmed. Robert Kennedy even called King to convince him to cease using children. While King, too, surely did not want any harm to come to any of the children, he just as surely was aware of this possibility, particularly after such an admonition from Kennedy. It is thus evident that in weighing the costs and benefits, King considered the opportunity for dramatic media coverage worth the risk. Despite Kennedy's call, the Birmingham children marched again the next day and, as expected, Bull Connor brought out the police dogs on the more than one thousand student marchers. Connor also cruelly ordered firefighters to turn their hoses on the children. The water force was enough "to rip the bark off trees. Children were knocked down by the streams, slammed into curbs and over parked cars" (190). Some children were even attacked by the police dogs. Across the nation, newspapers, magazines, and television coverage shocked the public. Not only did these scenes gain the media attention King desired, but it also stirred emotions and support across the country (190).

Coverage of the vicious attack on the children also raised more support from members of the black community whose committment had faltered in the past. In addition, the attack fostered more cohesion within the movement, causing David Vann, a legal counselor for several of the movement's leaders, to observe that "in the twinkling of an eye the whole black community instantaneously consolidated . . . behind Dr. King" (Williams190). However, perhaps most importantly to the movement, the media coverage made the matter "of great concern to the President" because "the federal government worried about America's image abroad" (191). As media coverage intensified, President John Kennedy began considering taking government action in Birmingham. According to David Vann, "It was a masterpiece in the use of media to explain a cause to the general public, . . . in those days, we had fifteen minutes of national news and fifteen minutes of local news, and in marching only one block they could get enough news to fill all of the newscasts of all the television stations in the United States" (qtd. in 191).

As King had hoped, the attention to the violence in Birmingham did indeed cause the government to take action. Robert Kennedy, "fearing that the violence [in

Birmingham] might trigger rioting nationwide," convinced President Kennedy to send in federal troops (Williams 194). The President was then forced to announce, "This government will do whatever must be done to preserve order, protect the lives of its citizens, and uphold the law of the land . . . those who labored so hard to achieve the peaceful constructive settlement of last week can feel nothing but dismay at the efforts of those who would replace conciliation and good will with violence and hate" (194). Media coverage had clearly exercised its power of agenda setting, placing the civil rights issue on the President's agenda. The media's continued focus on the matter of civil rights then elevated this issue's place on government agenda, prompting the President to make an even more important speech in which he asked Congress to enact Civil Rights legislation. Shortly after, Kennedy delivered a new civil rights bill to Congress (195).

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After the Birmingham demonstrations buoyed their cause, Civil Rights leaders chose Selma as their next site. According to Selma Mayor Joseph Smitherman, "They picked Selma just like a movie producer would pick a set. You had the right ingredients. [Sheriff] Clark, in his day, [was noted for having] a helmet liner like General Patton, an Eisenhower jacket, and a swagger stick" (qtd. in Williams 272). This manner of dress, his physical appearance, and his known use of force against blacks made Sheriff Clark the perfect actor for the drama that was to be created in Selma. Civil Rights leaders arranged their protest marches planning "to show the nation the violence that blacks met when attempting to register to vote" (259). Mayor Smitherman and Public Safety Commissioner Wilson Baker knew of this plan and intended to avoid such confrontation and media coverage. Both asked Sheriff Jim Clark to avoid using violent tactics against King. Following Baker's orders, Clark did not make any arrests at the group's first attempt to register but merely herded them into an alley behind the building. The leaders "feared that, with no violence to cover, journalists from the national press would drift away, taking Washington's attention with them" (259). Demonstrators then staged another march the following day, deciding not to follow orders to move into the alley. As expected, this incited Clark to violence. Clark grabbed one protestor and, with a club, forced the woman down the street. Even she was aware of the importance of such news coverage and told Clark: "I hope the newspapers see you acting this role" (259). The following

day's editions of the *New York Times* and the *Washington Post* ran photographs of the incident. Each time violence occurred, the press was there to take pictures and display to the world the trials the Negro faced in the South (259).

King realized "that nonviolent demonstrations would arouse violence on the part of racists and, as King later wrote, this would incite "Americans of conscience in the name of decency [to] demand federal intervention and legislation" (Williams 265). To ensure this arousing of conscience, leaders decided, as they had in Birmingham, to use schoolchildren in the marches to attract more attention and sympathy from the public. Television coverage showed mass arrests of these children being led to jail and reported stories of brutal prison treatment. King also chose to have himself purposively arrested again in order to maintain such media attention in the United States, as well as to extend this media attention to other nations. This media event was so well planned that King also decided to emulate the success he had achieved from writing his "Letter from a Birmingham Jail" by composing a similar letter in Selma. However, this time he composed the "Letter from a Selma Jail" before he was even arrested. This act was particularly well staged since King planned it less than sixty days after being presented with the Nobel Peace Prize (Williams 265).

Press coverage and sensationalism of the Civil Rights story continued increasing with Sheriff Clark's acts of violence and the strategically planned demonstrations. One month after Selma demonstrations began, an elderly black man was badly beaten by state troopers and his grandson killed while trying to protect him. An NBC new reporter was badly beaten to the point of hospitilization. Such brutality was on every front page and every newscast across the country. The nation "now understood the reign of terror" blacks faced in the South (Williams 265). Massive support for the movement quickly mounted as media coverage persisted.

The movement's support peaked following interrupted programming on networks of the violent police attacks on marchers attempting to march from Selma to the Alabama state capitol in Montgomery. According to accounts, "the police were riding along on horseback beating people" with clubs and "the tear gas was so thick you couldn't [see]" (Williams 273). The event earned the name "Bloody Sunday." Mayor Smitherman recalled, "it looked like war" (qtd. in 273). That image "went all over the country. And the people, the wrath of the nation, came down on us" (273). The march was then postponed to the following week. Yet again, police lay waiting for the demonstrators. This time, however, King promptly turned his marchers around, "having made our point, revealing the continued presence of violence, and showing clearly who are the oppressed and who are the oppressors, hoping, finally, that the national administration in Washington would feel and respond" (qtd. in 285). This statement proves King's underlying purpose of attracting media attention in order to present the movement's case to

the country and instigate Washington intervention. However, this also proves that King's first priority was to prevent any more violent attacks on any of his followers. King then secured the marchers' protection by a federal court order preventing any more police interference. The demonstrators, who by this time had been joined by other marchers from all over the country, finally marched to Montgomery on March 21, 1965. Two months later, the Voting Rights Act passed in Congress, securing blacks the right to vote. While there were other areas of inequality, securing this right to vote was a major victory because it gave them the tool they needed to elect who they wanted in office. The act also affected federal appointments, making black appointments to several high positions possible (285-86).

The leaders of the Civil Rights movement achieved several major victories in the 1960's: compelling the government to enforce the 1954 *Brown* decision, gaining equal access to public accommodations through the passing of the Civil Rights Act of 1964, and claiming the right to vote through the passing of the 1965 Voting Rights Act. However, without Civil Rights leaders' utilization of the media, these victories may never have been achieved. Movement leaders recognized the importance of delivering their message through media coverage in a way to best play upon the emotion and concience of the American public, knowing that this would arouse support from the people and, eventually, convince the government to enact legislation to award and protect their rights. Leaders brilliantly formulated strategies to depict their peaceful use of nonviolence in contrast with the brutality and violence shown them by their segregationist antagonists. These leaders utilized clergy, youth and children, and even white supporters as symbols of innocence in their confrontational protests and demonstrations in order to maintain continual media attention and to shock and shame the American public into supporting equal justice under the law. These well devised tactics did, in fact, persuade the American public to join the "freedom fighters" in their pleas to the government for relief and equality. And it was this support from the people that, in turn, incited the government to enact legislation providing Negroes with the inalienable rights they had so long been denied.

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Nature's Liberation

The Possibilities of Overcoming Instrumental Rationalization of Nature

by Nicole Nabors

Nature has, throughout the past century, been identified as an area that Marxian socialism did not adequately attempt to liberate in theory or otherwise. The problem of unliberated nature--that is, nature seen as merely an instrument to fill human needs--has only become more complex and has taken on more devastating possibilities as the current era of civilization has progressed. Among those who have dealt with the relationship of humanity to nature are the members of the Frankfurt School, here, primarily, Max Horkheimer, Theodor Adorno and, in connection with them, Jurgen Habermas. The members of the Frankfurt School believe that the Enlightenment concept of instrumental rationalization affects all aspects of present civilization. In applying this rationalization through the method of immanent critique, they have come to see the Western understanding of nature as "mere objects in relation to human subjects" (Horkheimer 93). In order to examine the possibility of an alternative relationship between nature and humanity, one must trace the formulation of this view of nature and examine its strengths and weaknesses along with other views on the subject.

In their work *The Dialectic of Enlightenment*, Horkheimer and Adorno present the purpose of the Enlightenment as demythologizing the world. Instead of alleviating fear of the unknown by an attempt to control nature through myth and magic, "[f]ormal logic . . . provided the Enlightenment thinkers with the schema of the calculability of the world" (7). Quantification became the fulfillment of a desire that stemmed from Plato's theoretical equation of ideas with numbers. From there, it came to dominate bourgeois justice, commodity exchange, and human relations with each other and with nature.

As Horkheimer and Adorno emphasize, "To the Enlightenment, that which does not reduce to numbers, and ultimately to the one, becomes illusion" (7). Numbers allowed dissimilar things to be cast in generic, comparable terms, thus allowing for a consistent way of relating things--domination. In *Eclipse of Reason*, Horkheimer claims that the primary reason domination has come to infiltrate all parts of the modern world is because "[t]he process of adjustment has now be-

come deliberate and therefore total" (95). Adjustment to instrumental rationalization, the Enlightenment mode of consciousness, was deliberate because it coincided with new industrial modes of production, and instrumental rationalization proved to be most efficient in designating favorable conditions for the intellectual and material production that is intrinsic to capitalism/industrial economy.

In order to have instrumental rationalism as the primary force in the world, the reasoning part of a person must be separated from the animal/natural part. This, in turn, leads to a subject/object relationship between humanity and nature, including the part of a human that is in nature. Horkheimer draws on Freudian psychology to explain how this occurs and how it leads to a desire to dominate everything, including nature.

He explains that to the child first faced with the rules of civilization, "[t]he father's command is reason exempt from nature, an inexorable spiritual force" (109). This demand to suppress immediate urges causes the child to differentiate between himself and the environment or, in Freudian terms, to adopt a superego. Unfortunately, according to this model, the suppression of urges not only leads to resentment against the father and, thus, civilization, but also to resentment against nature because it is a constant source of temptation.

The separation of all things, including the human species-being, into subject/object components means that "the human being, in the process of his emancipation, shares the fate of the rest of the world. Domination of nature involves the domination of man" (Horkheimer 93). Accordingly, the Enlightenment mode of consciousness is not emancipating if each subject must take part in making external nature, human and nonhuman, into objects, for the subject must also subjugate the nature in him/herself. This seems to be required, however, for a totality of adjustment to the Enlightenment mode of consciousness.

The consequences of a widespread domination principle, as the Frankfurt School recognized them, made necessary a new framework of critique, which they termed immanent critique. Immanent criticism involves simultaneously critiquing and creating the foundation for criticism, and Horkheimer justifies their version of immanent criticism by saying:

> Just as life today tends increasingly to be subjected to rationalization and planning, so the life of each individual, including his most hidden impulses, which formerly constituted his private domain, must now take the demands of rationalization and planning into account: the individual's self-preservation presupposes his adjustment to the requirements for the preservation of the system. (95)

This presupposition of adjustment is expanded, with the Frankfurt School, into a definition of reality. Horkheimer argues that the omnipresent need to rationalize and plan everything in today's world requires all of one's energy, to the point that

whatever reality a person is adjusting to at the moment becomes the ideal. People must preserve themselves by constantly adjusting to economic and social forces that take on the character of unseen natural powers.

So for Horkheimer and Adorno, nature as found within the schema of the industrialist world is only matter, and matter is defined to be possible objects of manipulation. Thus, in the end, the Frankfurt School's admittedly regrettable view of the relationship of humanity to nature is "on the one hand the self . . . emptied of all substance except its attempt to transform everything into means for its preservation, and on the other hand an empty nature, degraded to . . . mere stuff to be dominated" (*Eclipse* 97).

People must preserve themselves by constantly adjusting to economic and social forces that take on the character of unseen natural powers.

The arguments of the critical theorists regarding a seemingly empty interaction between humanity and nature are strong. The principles of domination and across-the-board instrumental rationalization can be seen in the way that, for example, a pine tree may be related to in terms of how much paper it could become, rather than as a tree. Here, since there is no ideal or stable foundation of a tree independent of how it is being construed by the subject. So the critical theorists make foundations dependent on the subject, which results in plural foundations. It is precisely on the point of plural foundations, though, that the critical theorists appear to fall short.

To begin with, it can be argued that it is contradictory for the critical theorists to use immanent criticism as they do because, as one critic points out, "Immanent criticism depends for its validity on the discovery of a discrepancy between a subject/object's concept and its actuality," (Held, 1980, p. 382). This requires acceptance of certain views of the object's concept. What happens if there are competing views?

Adorno defends immanent criticism to some extent by claiming that a choice of standards is arbitrary. He bases this on the belief that there is no starting or ending point to the cognitive process. However, Held writes that Adorno does not equate this with "epistemological and ethical relativism" (383). Not only does this not seem acceptable, it still does not clarify how a decision about taking an in-

strumental approach to nature can be justified.

The use of this sort of criticism by the critical theorists also brings up questions on a broader level. These questions stem from the fact that the whole point of immanent criticism is that foundations are created as a critique is being made. Thus, the critique will change within different social, economic, and historical settings. As Foucault describes it: "The subject who knows, the objects to be known, and the modalities of knowledge must be regarded as so many effects of these fundamental implications of power-knowledge and their transformations" (qtd. in McCarthy 444). Thus, by the very nature of the critique, there must be other possibilities for relationships of humanity to nature. In the case of current society (or the society in which Horkheimer and Adorno formulated their views), subjugation of nature would only be the predominant relationship of humanity to nature because it arises from the predominant practice of the present day, which is contingent upon the particular economic and historic arena of domination.

It follows from this that other relationships would be possible under circumstances other than the ones under which the Frankfurt School members made their critique. However, is it arguable that some relation other than that of domination is possible within the same foundation of the critique? While there is not a positive answer to this in direct contradiction to a proclamation of the Frankfurt School critique, there are several areas in which they either did not claim to have an unarguable point or did not comment. Several possibilities arise through these ambiguous areas that allow an end other than an empty ego with an empty nature.

One of these reasons is the relationship of knowledge and interests. Held summarizes Habermas in saying that "humans have an interest in controlling and manipulating objects in their natural environment, and to fulfill this they require knowledge of regularities" (393). While this is obviously true in many cases, it is not enough of an argument to negate empirical-analytic knowledge that does not directly lead to power or technical control. Held quoted Mary Hesse as saying that "many theories enlarge our pragmatic knowledge (for example about fossils or quasars), without necessarily forming the basis of technology," (393). Human interest in predictive knowledge without aims to technical control indicates a relationship between nature and humanity that is not limited to domination.

Jurgen Moltmann, in trying to deal with Marx's works on alienation from nature, proposes that, in addition to a human need to work upon nature and construct a world, there is another need that ought to determine humanity's relationship with nature. Moltmann emphasizes that "[n]ot only must humans work upon nature, they must also be able to live in it" (138). Moltmann argues that a home is where a balance exists that supports humans instead of making it a struggle to be recognized. In addition to shaping an environ-

ment out of nature, human society must also be attuned to the natural environment in a way that demands respect for nature's regenerative ability, and that supports adaptation to its cycles. He proposes, justifiably, that exploitation of nature will only lead to estranged, homeless groups of people. For Moltmann, "Nature only truly becomes a home when we utilize it without destroying it" (138).

Finally, daily life tells a story about our relationship to nature that includes parks, camping, and other signs that at least some portion of humanity has an appreciation for nature that does not inherently involve domination. Held refers to this type of phenomenology by commenting on Habermas and knowledge: "Habermas has not provided sufficient arguments to demonstrate that a range of orientations we can and do take toward nature--contemplative, playful, poetic, mimetic, communicative--are not cognitive," (393). From the perspective of Life-worlds, too, this constitutes a positive argument for a non-domination-oriented relationship to nature. The Life-world that society creates makes certain things possible according to how people relate to things, so it seems that there would be no parks if there were not some force of relation between humans and nature that involved something other than total subjugation of nature.

If these alternate relationships of humanity to nature exist, they need to be recognized in a way that allows instrumental rationalism to continue, as the critical theorists legitimately theorize that it will, without leaving the empty subject/ empty object situation as an only end. By fostering those areas of life which already hint at a more complex and fulfilling relationship of people to nature, there is no reason for production to be significantly impeded. By encouraging alternate critical foundations and spheres of activity kept external from the market, critical theory can account for multiple relationships between nature and humanity that correspond better to life experience.

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"Sister of the Black Widow Spider"

Images of Empowered Women in Motown

by Ginny Phillips

Established in Detroit in 1959, the Motown record company signified not only a source of music but a "vehicle to artistic and financial freedom" to African Americans across the nation ("Motown" 1). As the most profitable black-owned and run business in American history, Motown offered a large-scale (as well as symbolic) chance for real economic and artistic advancement to those within the black community who previously thought these opportunities were unfeasible. But as the record company offered a chance for freedom to the black community as a whole, the music itself showed black women a vision of the possible and the potential for their own freedom.

Certainly, any listener of Motown (as all 1960's and 70's black soul music has come to be popularly known) cannot ignore the portrayals of woman as victim or object. Hits like "She's a Brick House" by The Commodores, "Love Child" by Diana Ross, "Sugar, Sugar" by The Archies, "Rescue Me" by Fontella Bass, and numerous other well-known songs clearly identify women as either dependent on men, victims of society, or sexual objects. However, a dichotomy exists within Motown. Not only have the real-life women of Motown--Tina Turner, Aretha Franklin, Diana Ross--evolved into icons of successful, empowered black women, but this message of strength extends to women through the personalities themselves present in the music genre. Lyrics of an extensive subset of Motown music paint a portrait of independent, powerful women.

These songs portray woman as victor, not victim, and as controller, not controlled. The image of woman as controller may not be positive, however; within the complex image of empowerment lie various layers of implication and interpretation by the songwriters. Woman as a threat and a danger surfaces in certain imagery, while power serves as a necessary (and admired) response in others. While male performers such as The Dixie Hummingbirds ("Mamma Loves Me Like A Rock") and Percy Sledge ("When A Man Loves A Woman") praise women for their strength, others like Wilson Pickett in "Mustang Sally" express determination to squelch independence. Power may come through inner strength-- Aretha

Franklin's "Think" and Ike & Tina Turner's "Bold Soul Sister"--or through sheer sexuality.

Thus, even in instances where women are in control, interpretation may not be clear-cut. I am not arguing that all the "empowered women" songs are geared toward an ultra-feminist, politically correct viewpoint. They may raise more questions about perspectives of women than they answer. Power imagery may be a warning against women, or sexuality may be seen as a woman's only source of power. And love may be a source of power and leverage regardless of gender, so one could argue that a portion of the imagery is due only to the non-gender-specific concept of romantic ideals. Yet, whatever the connotation, this perspective of soul music offers a glimpse of women that are to be respected, emulated, or feared. Rather than being acted upon by outside forces and people, they are themselves forces with which to be reckoned.

The depiction of powerful black women is notable not only due to the turbulent political times of the 1960's and 1970's but because decades of popular culture had offered a very different view of black women. Jacqueline Bobo in *Black Women as Cultural Readers* writes that since early films, black women have been portrayed as "sexually deviant. . .eternally ill-tempered wenches, and as wretched victims" (35). Furthermore, James Nesteby writes that the predominant image of black women before the 1960's (again, the same time when black soul music came forcibly on the scene) was that of the "mammy/maid" figure, the self-denying caregiver (195).

Nor are these female stereotypes only race-based. Ninety-six percent of 1,164 popular songs from 1946 to 1976 contained a stereotype of woman as victim, needing a man, as an object, or as a possession, as childlike, on a pedestal, or evil. Thirty-seven percent of the songs in 1946 portrayed woman as depending on a man, and this number rose to 41% by 1956; Virginia Cooper points out that the lyrics reflect societal values (Cooper 261). Departing from this tradition where women were bound by political, economic, and social barriers--barriers still very present in the 1960's when many of the songs were written--a segment of women in Motown songs hold the power rather than have the power denied them. And because of the songs' mainstream appeal, the images had the potential to challenge perceived ideas about women.

Few Motown artists had and continue to have more mainstream appeal than Tina Turner. Both Tina Turner's on-stage persona and her song lyrics embodied the invincible woman, yet her lyrics were written by her husband and partner, Ike Turner. (Ironically, the public later discovered that the same man responsible for writing songs about such fearless women physically abused his wife throughout their marriage.) In 1974, the year she launched her solo career and two years before she divorced her husband, Turner released "Sexy Ida." In the song, Turner sings, "Don't you give your love to Sexy

Ida/'Cause she's the sister of the black widow spider." Throughout the song, sexuality works as a weapon to lure and destroy men. No longer is sexuality a tool to dominate and degrade women--it is used by them. The use of the female spider that mates and then kills neatly links the themes of sex and destruction.

Sexuality and womanhood itself are personified in Ida, who is described as having an ultra-feminine appearance. Her persona, which "looks so sweet and kind," includes "long black hair" that "hangs way down her back," "sexy legs," and a walk "just like a cat." But her description includes black imagery as well as feminine imagery, an inclusion noteworthy in the Motown era when race was almost never overtly mentioned. The black widow spider symbolizes the woman, and her hair is not only dark, but black. Though not explicitly mentioned, a sense pervades the song that not only is Ida a woman to be feared, but she is a black woman to be feared. Turner describes a black woman not resigned to the role of prey because of her attractiveness--a common theme in slavery literature--but one who has assumed the role of hunter. Yet, though Turner warns men against Ida, the singer does not voice a full-fledged condemnation. The song, which has a strong beat and fast rhythm, carries admiring, even congratulatory overtones. The pace of the song evokes celebration more than regret or tragedy. When Turner sings "You'll never leave the web of love she weaves," the line serves more as a taunt or a promise than a warning. While men should avoid Ida because she will only bring about their doom, Turner and the all-female chorus lustily repeat their threat against assuming safety around Ida. And whereas the black widow spider summons the connotation of danger, the usage of the cat to describe Ida's walk counterbalances the spider with a more positive image. The cat signals the attributes of independence and grace rather than the huntress association of the spider (though certainly a milder version of the huntress could be attributed to the cat as well). With this balance of positive and negative and the overall tone of the song, the description of Ida evolves into a tribute rather than an attack.

> These songs portray woman as victor, not victim, and as controller, not controlled.

Any negative implications in "Sexy Ida" are absent from "Bold Soul Sister" (1972), in which the opening line (sung by Tina Turner once again) is "I'm A Bold Soul Sister." Echoed throughout the song by an all-female chorus (again), Turner describes her own on-stage presence: "It's my thing/ I'm gone do what I wanna do." The use of the first person in the song does not seem to imply the assumption

of an alternate persona, but rather a perception of Turner's own public and possibly private image. The chorus to the song sums up its themes more than any of the verses--"Do what you wanna when you wanna how you wanna gonna do your thing soul sister." The phrasing in the title defines soul music as a source of the woman's power. "Soul" is part her identity. Since Motown music is identified so closely with Tina Turner's personality, this link between strength and the specific music genre reasserts Turner's connection to her lyrics.

If music serves as a power source, then clearly tapping into the source is not an experience unique to the bold soul sister referred to in the song. The use of "sister" as opposed to woman or any other more independent term also signifies a more collective perception of strong women. While Turner may be a bold soul sister, others exist, perhaps united in the bond of music. The use of the very present female chorus in both "Sexy Ida" and "Bold Soul Sister" further supports the community-geared view of womanhood.

Being a bold soul sister is equated with acting and thinking independently despite any sense of sisterhood. Yet, this independence does not occur without an impact on the man in the "bold soul sister's" life. The theme of a dangerous woman threatening men that surfaces in "Sexy Ida" resurfaces less blatantly in "Bold Soul Sister." The only mention of a male is in the line, "The more I grieve you, the smaller you get." The unidentified "you" has grown so small that men are not mentioned specifically in the song, but this line draws attention to the fact that the omission is not an unintentional one. The song centers around the independence of a woman, and either a cause or an effect of this independence is the diminishment of the role of a man in her life.

In Wilson Pickett's "Mustang Sally" (1966), the listener receives not only the description of an independent woman, but the opinion of a man towards her need for freedom. Tina Turner's brief reference to the uselessness of a man in her life in "Bold Soul Sister" becomes a central theme in Pickett's song. Much more than a song about a woman driving a car, the song centers around freedom and the all-consuming need for freedom. Freedom equates to movement in the song, and the car itself proves to be the woman's key to self-sufficiency. More than traveling, though, Sally achieves a kind of symbolic flight, one that motivates the male narrator to sing, "Guess I have to put your flat feet on the ground." Through her literal and symbolic movement, Sally has broken free of whatever societal or economic constraints. previously held her earthbound.

Rather than serving as a tribute, Pickett gears the song as a complaint and a warning against women like Mustang Sally. Unlike in Turner's songs, the self-reliance of the woman should not be respected--it should be obliterated. Just as he wants to return her to her more grounded state, he warns, "You better slow your Mustang down" and "You gonna be wiping

your weeping eyes." Not only does her freedom hurt him, but he believes her pursuit of it will eventually prove destructive to her as well, or will incite him to hurt her. Of course, the narrator expected Sally to ride in the car, but he objects to her refusing to allow him to accompany her. He explains that she "don't want to let me ride" by singing that she is only "signifying a woman." Since Pickett uses the song as a warning to other men, he asserts that the potential for this sort of ridiculous behavior lies in all women, and Sally's actions result from inherent femininity. Though the narrator means Sally signifies a woman by refusing to show her gratitude by letting him ride in the car, he also implies that all women have a yearning for freedom and the ability to achieve it.

> If music serves as a power source, then clearly tapping into the source is not an experience unique to the bold soul sister.

As mentioned earlier, the narrator of the song gives Sally the car, giving her an economic independence she did not possess earlier. Whatever her previous inclinations, she could not leave or escape until she had the mechanism. Before giving her the car, the narrator apparently received more acquiescent treatment, but he only held a degree of control because it was only economic.

Aretha Franklin's "Think" (1970) departs from Tina Turner's and Wilson Pickett's use of personae, using instead the form of an insistent, first-person proclamation. She sings, "You better think, think about what you're trying to do to me." She urges the man in her life to change his perspective; knowledge equates to the broadening of perspective. Franklin adds, "I ain't no psychiatrist; I ain't no doctor with degrees, but you don't need too much I.Q. to see what you're doing to me." Despite her lack of scholarship, Franklin's realization of the inequalities of their relationship--"You keep doin' things I don't"--gives her insight and a motivation that the man does not have. And without her own freedom, she realizes, they cannot continue to have a relationship. With twelve mentions of the word "freedom" in the song, the lyrics praise the freedom to think and believe independently from another. And, Franklin asserts, if the man would only think about their relationship, he would realize her lack of freedom. Men are not cast in the role of inherent enemy; the narrator assumes the relationship can work if only the male can see the female point of view.

Franklin's song calls for interdependence rather than total independence. After her calls for freedom, she sings, "You need me; I need you / Without each other, there ain't nothin' we can do." (Although, even in this sentence, the "you need me" is placed first in the parallel

structure.) Besides her own need for freedom, she is motivated by a desire to help and improve the man in her life. She finds the man's inability to look past his own perspective not only ignorant, but dangerous--"People walking around every day, playing games, keeping score/ Trying to make other people lose their minds/ Be careful you don't lose yours." The other people she speaks of have the same problem she has been addressing: self-absorbed thinking. By "keeping score" rather than focusing on less-competitive ventures, they miss the interconnectedness she deems necessary for mutual benefit.

Obviously, each song adds another level to interpretation of self-aware women. Economic references abound in "Poke Salad Annie" by Red Campbell, a narrative song about a rural woman so poor that she eats only soup made out of a weed that grows in the woods. Class references are tied to economics; the woman's mother works on a chain gang ("Everybody said it was a shame that her mamma was workin' on a chain gang"), and the community thinks that mean-spiritedness must run in the family. Her poverty itself seems to be threatening. Though none of her actions are ever described other than picking poke salad, Campbell comments, "A mean, vicious, cold-hearted woman," without identifying whether Annie or her mother is being described.

The community will not approach Annie ostensibly because she, like the plant for which she is named, is too low-class. Yet an obvious element of fear exists as well--neither the singer nor the community understands Annie or her mother. Annie's desire for solitude (living alone "way back in the woods") and refusal to ask for help are equated to her mother's criminal behavior, and her independence is the only plausible reason for the indictment of "mean, vicious," and "cold-hearted."

Whereas Annie is feared for her independence, the respected mother in "Mamma Loves Me Like A Rock" by The Dixie Hummingbirds (1973), is pitted against the devil himself and conquers consistently. The narrator's mother gives him the strength, synonymous with religious faith, to withstand any temptation. From the time he was a child until the present time, he recalls his mother's faith in him and in God, and he grounds his actions in the ideals she instilled in him. The song begins:

> When I was a little boy and the devil would call my name, I'd say who do you think you're foolin'? I'm a consecrated boy singin' in the gospel choir--my mamma loves me, she loves me, she gets down on her knees and hugs me. She loves me like a rock, she rocks me like the Rock of Ages. . .

Through the use of the maternal image, the performers construct an invincible heroine devoid of sexuality, unlike most of the strong women depicted in soul music. The mother becomes almost a Virgin Mary archetype, interceding between God and the male narrator, yet neither God nor any sort of omnipotent figure is ever mentioned in the song; there-

fore, the mother assumes the role opposite the devil. As a near-divine and omnipotent figure, she has great power, yet the power is tempered by its strong foundation in love and nurturing.

Both Percy Sledge's "When A Man Loves A Woman" (1967) and B.B. King's "To Know You Is To Love You" (1973) (written by Stevie Wonder) present a man admitting the power a woman has over a man because of love. Sledge's song revolves around the lengths a man will go to in terms of self-sacrifice and discomfort when he loves a woman. He will "sleep out in the rain" or "turn his back on his best friend if he puts her down." King's Top 15 R&B hit likewise admits his inability to escape the influence of the woman he loved-- "To know you is to love you, is to see you being free as the wind / 'Cause the power of your lovin' is too strong to hold within." The recipient of his love does not feel the same way that he does, however, since he complains that "to know me is not that way it seems."

This inability to escape from the influence of a woman differentiates these songs from the traditional woman-as-possession songs; the men belong to the women as much as if not more than the women belong to the man. Although misogynist undertones may be visible, no explicit lyrics proclaim the woman as anything other than the rule-setter of the relationship. Nor can the songs be dismissed as proclamations of romantic love which have no impact on gender issues. Whatever the universal effects of romantic love may be, the implication in both songs is that the women do not care for the men as much as they are cared for by the men, and therefore are not manipulated as much by their romantic feelings.

These songs and others echo the one-word theme of Aretha Franklin's "R-E-S-P-E-C-T." At a basic level, they are an acknowledgment of women's abilities and hopes and of what can be achieved. The achievement of independence or equality may be frowned upon by the performers or songwriters. However, the portrayals of such heroines (intentional or not) offers a nontraditional view of women not shaped by societal standards.

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Fantasy, the Supernatural, and Theatrical Detail

The Films of Kubrick, Coen, Jarmusch, and Lynch

by K. Braden Phillips

Appreciation of the bizarre aesthetic in film requires examination of the director's interest in the grotesque as fantasy. Directors may enhance the bizarre aesthetic by weaving a few strange details into a commonplace situation, or they may opt to abandon the ordinary world in favor of a very quirky setting. Rather than feeling compelled to imitate reality, directors frequently use settings and camera techniques which present characters as part of a dreamscape. The presence of theatrical details, dream-like conclusions, and characters' observance of apparitions serve to blur the line between fantasy and reality. Joel Coen, Stanley Kubrick, Jim Jarmusch, and David Lynch invoke elements of the bizarre aesthetic using techniques which encourage viewers to experience film as dream--or nightmare.

Entrance into the fantasy world is announced by the presence of the theatrical in film. Kubrick's creative use of theatrical elements allows him to explore the tension between imaginary and real scenarios. References to the theatrical presence in Kubrick's *A Clockwork Orange* underscore the main character's perception of violence as a form of recreation or performance. The rape of a young girl in an antiquated theater is one such sequence. Her attackers seem to be capturing her in a slapstick manner as she refuses to cooperate in their attempts to pin her down. Later, when the protagonist's gang and the rapists are fighting, their acrobatic leaps and somersaults are humorous and circus-like, despite the bloodiness of the sequence. The boys' violence, it may be interpreted, is the ultimate result of the erosion of high culture; the theater is no longer utilized for genuine productions, so Alex and his friends are obsessed with creating drama (and even musicals) through their actions in real life.

Similarly, the character of Clare Quilty in Kubrick's *Lolita* may be analyzed in terms of his inability to distinguish between life and performance. Involved with "art films," Quilty switches identities frequently, acting in numerous roles as he toys with Humbert. When trying to convince Humbert not to kill him, Quilty argues frantically, "I'm a playwright--I know all about this sort of comedy and

tragedy and fantasy and everything"; ironically, it is this very familiarity (and his conception of a theatrical identity shuffling game) which has brought Quilty's demise. Quilty's death behind the painting of the woman is bizarre, ironic, and appropriate; even at the moment of his death, Quilty attempts to disguise himself. It must be noted that, though the games of identity provide interesting plot twists, Peter Sellers may not have been the best man for the role; many reviewers have noted that he often seems to overdo his acting, and the result is that he becomes too ridiculous to be effective.

As Quilty juggles identities in order to dupe Humbert, we see him in a variety of disguises. However, in addition to Quilty's quick costume changes, the theatrical presence is evident in Lolita's clothing and make-up after the play when she is arguing with Humbert about whether she can go to the cast party. Lolita's apparel transforms her into an exaggeration of the glamorous character she strives to be in her everyday life. Masks or costumery can also be observed in Kubrick's *The Killing* and *A Clockwork Orange*. In his text *A Short History of the Movies*, Gerald Mast notes, "Kubrick's great cinematic gift is not just his ability to develop this bitterly ironic theme, but his gift for finding the perfect ironic tone-- part horror, part humor, a mixture of Grand Guignol--for developing it" (445). The use of a clown mask during the robbery in *The Killing* is a bizarre detail which illustrates this ability of Kubrick's. In *A Clockwork Orange*, Alex and his gang wear masks when committing acts of violence; one would suspect that this is done to protect their identities as well as to enhance the grotesqueness of their "performances." Fittingly, the mask-wearing Alex enjoys howling the musical score "Singin' in the Rain" as he beats his victims.

Alex's conditioning, which culminates in a "test" he must pass before leaving the institution, involves the loss of his ability to transform violence into a theatrical art (and thus his ability to allow fantasy and reality to merge). Alex is on stage, and when approached by actors who threaten him or tempt him, he attempts to join in the performance as he ordinarily would; he fails miserably and suffers as all the men in the audience ogle and applaud the half-naked girl. Because he has learned to associate physical pain with violence, Alex finds himself unable to play his earlier theatrical games; the queasiness of his stomach has more power than his violent imagination, at least temporarily.

Both Alex in Kubrick's *A Clockwork Orange* and Hi in Coen's *Raising Arizona* are first person narrators who share dreams and fantasies. As Kubrick recognizes, "Alex is always completely honest in his. . . narrative, perhaps even painfully so" (Ciment 8); Alex doesn't just describe the bare bones of a situation, but he lets us know how he felt about it. Hi is also an honest narrator and speaks poetically but not presumptuously. Both Hi and Alex address the audience as they tell their stories; Alex frequently uses the Nadsat greeting "O my brothers," and Hi remarks, "Nathan Arizona--well, hell, you know who *he* is." Though both are exaggerated characters attempting to relate

to the audience, the result of their attempts can be contrasted; while Alex is careful to tell his story as he would tell it to a stranger, Hi's assumption of familiarity (and the falsity of that assumption) prompts audience members to position themselves as curious onlookers rather than the narrative's addressees. Of course, the audience is also detached from the character of Alex; through his depiction of Alex's Bible-reading fantasies, Kubrick emphasizes the discrepancies between Alex's point of view and the audience's likely perspective. For instance, Alex, unlike the average Bible reader, is prompted to imagine himself helping out with the crucifixion. Kubrick sets this dream apart with filming techniques and costumery; he explains his motivations to an interviewer who asked why the sequence resembles "a bad Hollywood movie": "I thought Alex would have imagined it that way. That's why he uses the American accent we've heard so many times before in biblical movies when he shouts 'Move on there!'" (Ciment 3). Thus, Kubrick attempts in *A Clockwork Orange* to echo not only the narrator's honest words, but also the most minute details of his fantasies.

Sometimes directors choose to include a dream sequence in order to help the audience to understand the inner life of a character. In Coen's film *Blood Simple*, Abby has a dream in which her husband warns, "He'll kill you too"; Coen uses this dream to illustrate the difference between what the audience knows and what Abby knows about the situation. In a sense, Coen pokes fun at dream interpretation with this scene; as opposed to those films in which protagonists experience anagnoresis (recognition), *Blood Simple* closes without admitting comprehension of the complete situation to any one character. In Coen's film *The Hudsucker Proxy*, the main character's dream sequence, featuring a scantily clad dancer, is a recognition of his evolution from a mild-mannered, noble-thinking mailroom worker to a well-paid executive with an inflated ego. Unfortunately, this dream sequence leaves the impression that Coen is resorting to a very compressed and flippant characterization.

While the dream sequence in Coen's *The Hudsucker Proxy* doesn't quite hit the mark, Coen uses the technique quite effectively in other films. For instance, in *Raising Arizona*, Coen explores Hi's dreams about a character named Lenny, who has been interpreted as Hi's doppelganger. *Film Comment* defines a character's doppelganger as "a person's ghostly counterpart whose destiny is tied to his" and as a person who "often acts out the main character's deepest and darkest desires" (Horowitz 26). Therefore, Coen uses the dreams about the doppelganger to address Hi's fears about becoming a father; ironically, when Hi wakes from his first dream about Lenny, his wife is singing a murder ballad to Junior and tells Hi, "He was just having a nightmare, that's all." The dreams about Lenny are ridiculous and humorous, such as when a scene depicts a rabbit's head being blown off by Lenny as Hi describes how Lenny "was especially hard on the little things." Critics such as Peter Reiher might cite this as an example of how directors like Coen "don't seem to care

about any of their characters, except as the butts of jokes" (Reiher). However, Coen may simply be conjuring the audience's familiarity with the inconsistencies or exaggerations which have appeared in their own dreams; the fantasy world is uncontrollable, Coen may be suggesting, and therefore will seem ridiculous at times. Having hinted at Lenny's presence through foreshadowing details like the sun's rumbling (which resembles the sounds of Lenny's motorcycle), Coen brings Hi's doppelganger to life as Lenny emerges in the real world to challenge Hi.

Just as Hi's dream about Lenny is fulfilled in *Raising Arizona*, fantasy sequences in Coen's *Barton Fink* and David Lynch's *Blue Velvet* eventually achieve reality, if only a very hazy reality. Barton is obsessed with and fantasizes about a picture of a sunbathing girl which hangs over his desk in the motel; eventually, in the predictable and dream-like conclusion of the film, he meets and talks to the girl on the beach. In Lynch's *Blue Velvet*, the girl-next-door character of Sandi (who emerges from the darkness like an apparition) comments on the crime activities, "It's a strange world" and then proceeds to describe the dream she had the night before she met Jeffrey:

> The world was dark because there were no robins. In the dream, robins represented love. There was only darkness, but then thousands of robins were set free...They flew down and brought the blinding light of love. . . . There's trouble till the robins come.

At the film's creepily cheerful close, a robin lands on the windowsill; the fulfillment of Sandi's dream is obvious, but the scene is made slightly more interesting by the fact that the robin is devouring an insect. Though both *Blue Velvet* and *Barton Fink* feature unsurprising conclusions in which fantasies are realized, these conclusions take on two different tones; the final sequence of *Barton Fink* is dreamily low-key while both the introduction and closing of *Blue Velvet* are exaggerated and kitschy, resembling the bizarre suburbia depicted in *Edward Scissorhands*.

Jarmusch has explained that he shot *Dead Man* in black and white to enhance the "hallucinatory quality" of the film.

Kubrick, Coen, and Jarmusch prefer to end films in ambiguous or unresolved ways; for instance, the final sequence of Kubrick's *A Clockwork Orange* lends itself to multiple interpretations. The film closes with Alex's fantasy of having sex on the ground with a beautiful girl as a Victorian crowd cheers; the voice-over explains, "I was cured alright." The response of most critics to this sequence has been that Alex has merely gone back to his former ideals and actions. However, the visible glee of Alex's female partner as well as her dominant position suggest an alternate interpretation; perhaps Alex's preferences *have* changed, to some degree at least. The fact that the Victorian crowd is cheering may also be im-

portant because it seems to be parallel to the eager journalists snapping photographs of a jubilant Alex.

As in Kubrick's *A Clockwork Orange*, the concluding sequence of Coen's *Raising Arizona* is one of the narrator's fantasies accompanied by a voice-over; this ending is marked by ambiguity as was the close of Alex's story. Hi describes his "dream light as ether" of a cheerful family reunion in the future, thereby admitting that he is not sure whether the dream's events will ever occur but asserting that "it *seemed* like our home." Though both *Raising Arizona* and *A Clockwork Orange* end ambiguously, the nature of the questions or possibilities presented by the two films are very different. The ambiguity of the close of Alex's story is the result of the audience's uncertainty of whether Alex's definition of the word "cured" matches their own; a general sense of distrust of Alex colors audience interpretation of the events depicted in the final sequence. The ambiguity in *Raising Arizona* is not a question of Hi's credibility as narrator; rather, neither the audience nor Hi knows whether the dream can or will be realized. The difference in the questions raised by each film's conclusion may be a function of the films' narrators' contrasting personalities; Alex is sure of himself towards the end of the film while Hi is plagued by past failure and therefore has some reservation about the possibilities of his idyllic vision of the future.

Several of the films of Kubrick and Jarmusch end with scenes which are of a visionary nature, suggestive of fantasy rather than realism, but which are presented as actual events rather than as dreams. Kubrick's *2001* presents a final sequence which invites speculation on the meaning and future of the star-child which appears above the bizarre environment (described by some as "nightmarish") where Bowman breathes his last. Jarmusch's film *Down By Law* does not appear to end in a dreamscape of odd environment; however, just as Jarmusch's *Stranger Than Paradise* closes with the characters' destinies altered by serendipity, amazing coincidences in Bob's life at the end of *Down By Law* leave him with a fairy tale future "like in a book for children." Bob's future approaches fantasy and so is consistent with is identity as a character of magical naiveté. The conclusion of Jarmusch's *Dead Man* imparts as sense of mythos and of continued journey into a bizarre mystical realm, as does Kubrick's *2001*.

Jarmusch and Kubrick invoke the supernatural through visionary endings; this can also be accomplished through incorporation of apparitions. Kubrick, Coen, and Jarmusch use apparitions to guide plot and enhance the bizarre aesthetic. Ghosts serve the distinct purpose of warning characters of impending danger in Kubrick's *The Shining* and in Coen's *The Hudsucker Proxy*. In Jarmusch's *Mystery Train*, however, the ghost of Elvis functions as connective tissue for the narrative. It is a symbol of the somewhat naive Luisa's ability to experience what has been considered a kitschy tabloid myth in Memphis for so long; futhermore, Elvis's apparition is a salve for the recent widow's need for Southern gentility (which she has not been able to find in the world of lustful, selfish strangers). The ghost in Jarmusch's *Mystery Train* is translucent, unlike the solid apparitions in Kubrick's *The Shining*, which are capable of mov-

ing objects.

A supernatural mood is achieved by Jarmusch's *Dead Man*, a film which centers around mystical beliefs just as *Mystery Train* focuses on Elvis as legend. Jarmusch has explained that he shot *Dead Man* in black and white to enhance the "hallucinatory quality" of the film. The character of William Blake is led into what Jarmusch calls "a world that becomes less and less familiar to him"; as Jarmusch points out, "If I had shot the film in color, that whole important, hypnotic, disoriented, magical quality of the landscapes would have been partially damaged by our familiarity with the color values" (Chean 1). Indeed, as William Blake enters this dreamscape, he finds mirages (such as the Indians' faces in the woods) to be as strange as real scenes. The character of Nobody, who represents unjust treatment of Indians as well as the merging of native and European mysticism, frequently calls up visions to guide his actions. The final sequences of *Dead Man* truly allow the viewer to experience film as dream; the occasion is serious, holy, and certainly not consistent with the typical cowboy film or even the coincidental closings of most Jarmusch films.

Even though *Dead Man* is quite different from Jarmusch's other films, Jarmusch's signature is still recognizable. Achievement of the bizarre aesthetic is reliant on aspects of fantasy which ultimately can be traced only to the individual director's vision. Contemporary directors like Coen, Jarmusch, and Lynch are building on the work of Kubrick, who employed theatrical details and dream sequences; these directors play off Kubrick's example, but also manipulate time in innovative ways and test the limits of the black and white formats which many directors have chosen to leave behind. Appreciation of the work of these directors often requires the audience to be open to new ways of experiencing film; after all, we could not speak of the "bizarre aesthetic" of these directors' films if their works were predictable.

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K. Braden Phillips has appreciated the bizarre aesthetic at Birmingham-Southern for two years. She dedicates this paper to the mystical ballerina who retyped all of it after the Great Disk Disappearance, as well as to J. Baxter, who valiantly rescued the second disk from the clutches of a cyber-virus.

Identification of Multiple Clades Within Same Strands of *Streptococcus Pneumoniae*

by Jeremy Rogers and Dr. Susan K. Hollingshead

Pneumococcal surface protein A (PspA) is a surface protein antigen found on all *Streptococcus pneumoniae* strains examined to date. Immunization with one type of known PspA has been known to elicit antibodies that cross-protect against a wide variety of strains. Studies have been performed recently to determine its possible use in a future vaccine containing only a few PspA molecules which can protect for a large number of *S. pneumoniae* strands. This study continues this effort. Seven serologically diverse strains of *Streptococcus pneumoniae* were obtained from a patient at Vanderbilt University over several months. The PspA gene from each of these strains was examined by polymerase chain reaction (PCR) and direct nucleotide sequencing in order to investigate their genetic variability, as it relates to clade identification, that occurred during infection. Instead of observing a single clade classification for each strain, as was expected, multiple clade identities were seen in five of the seven strains examined. This indicates that two PspA genes might be located within the genome or one PspA gene may have multiple clade identities.

Introduction

"The captain of the men of death," was one summation of the bacterium known as *Streptococcus pneumoniae* (Gray, 1996). Each year in the United States, this bacterium is responsible for more deaths than any other pneumococcal infection and is the leading cause of community-acquired fatal pneumonia (Gillespie *et al.*, 1989; Siber, 1994), not to mention the millions of dollars spent in medical care. Although it has been around since the time of Hippocrates (Gray, 1996), there is still no easy solution to this continuing pathogen.

In the early 1970's, the quick and painless treatment for pneumonia and other pneumonia-related infections was to administer doses of penicillin or erythromycin, as all strains of streptococcus were susceptible. In 1941, a Columbia University antibiotics professor claimed that 10,000 units of penicillin a day for four days could cure any respiratory infection. However, through the misuse of these and many other antibiotics, this organism adapted to its environment. *S. pneumoniae* developed resistance to penicillin world-wide (Garrett, 1994). In

South Africa, from 1979 to 1990, the average percentage of penicillin-resistant strains was 9.9 percent. Since 1990, though, these numbers jumped; in 1989 the annual total percentage of resistant strains was 16.3 percent (Mufson, 1994). This organism was evolving, creating newer, deadlier strains.

The scientific community responded in 1977 with the introduction of the first 14-valent pneumococcal vaccine. It contained 14 of the most common types of the purified pneumococcal polysaccharide capsules. In the United States, it provided approximately 80 percent coverage against all invasive pneumococci strains. In 1983, nine additional polysaccharides were added to create the currently used 23-valent vaccine, providing 90 percent coverage of all pneumococcal isolates in the United States (Robbins *et al.*, 1983; Mufson, 1994). Although this vaccine is highly effective at protecting from infections, there are, however, several problems associated with this vaccine. One major problem is the under-utilization of the vaccine, particularly in those individuals who are at high risk of infection (Gardner *et al.*, 1993). In two studies by Shapiro *et al.* (1991) and Butler *et al.* (1993), the efficacy of the vaccine was determined to be 56 percent for those judged to be immunocompetent and at high risk. However, for those who were immunocompromised, particularly children less than two years of age and the elderly, the vaccine showed only a 21 percent effectiveness. For those with underlying illnesses that decrease immunological responses, such as HIV, chronic renal failure, or nephrotic syndrome, the 23-valent vaccine provides little or no coverage. This is particularly true for children less than two years old. Young children do not elicit an adequate immunogenic response to any polysaccharide antigen particularly the current vaccine. They do not produce substantial amounts of required antibodies to fight off the various strains of pneumococci as compared with adults (Stansfield *et al.*, 1987; Mufson, 1994; Briles *et al.*, 1997).

The current trend is to create a protein-conjugate vaccine which can boost the immunological response in all age groups including young children. This is accomplished by covalently linking the polysaccharides from the current vaccine to protein antigens. In doing so, T-helper cells are utilized for invoking the proper immunogenic response. For the *Haemophilus influenza* type b polysaccharide, this approach has met with great success and has proven to be safe for children (Baltimore, 1992; Vella *et al.*, 1992). There are several vaccines of this type under development (Mufson, 1994; Siber, 1994).

Some apprehensions, though, are indicated for this current trend in vaccine development. Most of the children who die each year from this bacterium reside in developing countries. It is improbable that these countries will use this expensive vaccine due to its high cost despite the potential (Siber, 1994; Briles *et al.*, 1997). Also, there are reservation about the side effects of giving a polysaccharide-protein vaccine to young children since their evolutionary immunological response does not usually include a response to complex polysaccharide proteins (Briles *et al.*,

1997).

These concerns have led researchers to look at the possibility of cross-reactive protein antigens. As opposed to the polysaccharide protein-conjugate vaccine, the protein antigens are inexpensive and easily produced by recombinant DNA technology. They are also highly immunogenic in young children and the elderly (Briles *et al.*, 1997). However, in order to accomplish this, a common trait among most pneumococci must be found that can produce a proper immunologic response.

Pneumococcal surface protein A (PspA) is one such cross reactive protein antigen found on the surface of all pneumococcus (Crain *et al.*, 1990). PspA was first discovered with monoclonal antibodies (Mab) which bound directly to a single protein on the pneumococcal surface determined to be PspA. Its particular function in *S. pneumoniae* is not yet known, however, antibodies to PspA have been shown to protect mice from nasal colonization (Briles *et al.*, 1988; Briles *et al.*, 1989; Briles *et al.*, 1996; Briles *et al.*, 1997; Crain *et al.*, 1990). Further studies have revealed that immunization with full length, recombinant, or recombinant fragments of PspA could protect mice from infection (Briles *et al.*, 1989). Although PspA has been proven to be a major virulence factor (Briles *et al.*, 1988), developing a vaccine presents a new problem.

PspA is serologically diverse (Crain *et al.*, 1990). Besides the evolutionary pressures exerted upon it by the use of penicillin and other antibiotics, pneumococci have been known to uptake random DNA or DNA fragments from its environment and include it into its own genetic code creating a large number of genetically diverse strains (Yother *et al.*, 1986; Garrett, 1992). Over 48 different PspA patterns have been identified using a panel of 7 Mab that bind to several different epitopes located on the PspA protein (Waltman *et al.*, 1992). Some of these epitopes, though, share a degree of commonality with a wide variety of strains which differ in PspA type and capsular type (Briles *et al.*, 1997). Immunization with a single PspA is also cross-protective for many differing strains (Tart *et al.*, 1996), regardless of capsular type (McDaniel *et al.*, 1991). The fact that PspA elicits cross-reactivity for a number of strains makes it possible to immunize with only a few proteins that would protect against a large number of strains. This depends upon how many variants of PspA exist among *S. pneumoniae* strains that circulate throughout communities. The level of diversity in PspA in natural pneumococcal strains is unknown. This study is one of a number designed to further investigate the extent of variability in PspA.

The PspA gene has been extensively examined, and it can be divided into several distinct regions (Figure 1). The 3' C-terminal region contains a proline-rich site and 10 choline-repeats which bind PspA to the surface of the cell because of the pro-ala-pro-ala repeating sequence and the C-terminal tail (McDaniel *et al.*, 1992; Yother *et al.*, 1992a; Yother *et al.*, 1992b). The C-terminal end of the gene is greatly conserved for most strains and shows only slight variability. On the 5' N-terminal end, there is an alpha-helical/charged area of the gene that is the most interesting because its diversity (McDaniel *et al.*,

1992; Yother *et al.*, 1992a; Yother *et al.*, 1992b; Briles *et al.*, 1996; Hollingshead *et al.*, 1997; Briles *et al.*, 1997). Within this region there are two sites, known as A and B regions, which are responsible for most of the diversity of PspA. Through direct sequencing of strains varying in capsular and PspA type and immunization studies, the region of amino acids 192-290, the B region, was determined to be the major protection-eliciting region (McDaniel *et al.*, 1994).

Many studies have been performed on this region to determine the homology existing among differing strains. These studies reveal that strains can be distinguished into six distinct groups, or clades, which are ~90% identical within a clade and ~40% identical between clades (Briles *et al.*, 1996; Briles *et al.*, 1997; Hollingshead *et al.*, 1997). Thus, immunization with PspA from a single clade would be completely cross-protective for strains form the same clade and is somewhat cross-protective for different clades (Briles *et al.*, 1996).

This paper deals with seven strains, V19-V26, of *S. pneumoniae* obtained from Vanderbilt University. The strains were taken from a young boy at different time intervals in order to determine the genetic variability that occurred during infection (Table 1).

Materials and Methods

The strains, V19 through V26, were analyzed by polymerase chain reaction (PCR) using oligonucleotide primers specific for different clades (Table 1). The PCR products were then run on a 1.0% agarose gel with gel standards for comparison. These standards include DNA from strains for which the PspA clade was previously determined and a 1-kilobase (kb) DNA ladder to determine the size of the DNA fragments. After the Vanderbilt strains were examined by PCR for strains 1-4, the electrophoresis data were entered into a database and compared to one another and to controls. A preliminary clade assignment of the PspA molecule in the Vanderbilt strains was determined by comparison of these strains relative to controls (Table 3). Several of the products were sequenced to interpret ambiguous results obtained by PCR alone (Figures 3-6). These strains were sequenced by an ABI Automated DNA Sequencer using the particular primer used in the PCR to determine the sequence of the PspA gene near the primer site. Sequencing of certain strains allowed final clade assignments to be made according to genetic sequences.

"The captain of the men of death" was one summation of the bacterium known as *Streptococcus pneumonaie.*

Results

The experiment was performed in order to assign clade specificity of seven serologically-diverse pneumococcal strains, V19 through V26, obtained from Vanderbilt University (Table 1). DNA from each strain was examined by PCR

with clade-specific primers. Some of the strains were then sequenced to interpret unclear PCR results. Strain V19 gave a single clade-specific product, that of clade 4 (Table 3). Upon direct sequencing of this DNA (Figure 3) and comparison with other pneumococcal strain sequences (Figure 2), it was concluded that it was indeed a clade 4 strain. Strain V20 was not detected on any of the PCRs, and it was assumed that this DNA was non-pneumococcal DNA.

However, comparison of the electrophoresis data did not clearly indicate a single clade specificity for every strain (Table 3). V21 through V24 gave similar PCR results. A PCR product was amplified for both clade 1 and clade 3 or 4 in each of these strains; no single clade identity could be established since two clades were being seen. The clade 1 products were smaller than the clade 3 or 4 products by approximately 350kb in each case. Sequencing of strain V26, one of the clade 1 products, confirmed that it was a clade 1-specific product (Figure 6). Sequencing of the clade 3 or 4 products from V24 (Figure 4) and V26 (Figure 5) showed that these strains were from clade 3 (based on comparisons with Figure 2). Since V21 through V26 were amplified in the same regions on the clade 1 and clade 3 or 4 PCRs, it was assumed that the DNA sequences from the above selected strains would be similar to the other V21-V26 strains. These strains were expressing both clade 1 and clade 3 regions.

Conclusions

PspA is a surface protein present in all pneumococcal strains examined to date (Crain *et al.*, 1990). Immunization with one form of this protein has been seen to elicit a cross-protective antibody response that protects against pneumococcus of varying PspA and capsular type (Tart *et al.*, 1996). A protein-based vaccine using PspA would be extremely beneficial for young children because the current vaccine is not immunogenic in this highly susceptible age group. To develop a vaccine, the variability of the PspA gene must be examined thoroughly in strains of various types. This study continues this effort by examining seven strains, V19-V26, received from Vanderbilt University. DNA from these strains was analyzed for the first four main clades, clades 1-4, because clades 5 and 6 occur with less frequency, as only one strain has been found for each of those clades.

Serological data on isolates from this patient (Table 1) indicates a different PspA molecule in V19, V20-V24, and V25-V26. These differences in PspA serotype was assumed to correlate with the differences seen in the PCRs. In other words, V21 should have given different results than V26 because the PspA serotypes for these strains were dissimilar. V21-V26, however, showed the same results on both the clade 1 and clade 3 or 4 PCRs (Table 3). Also, the fact that these strains were amplified in both the clade 1 and clade 3 or 4 tests is extremely interesting since *S. pneumoniae* has never been known to express two separate clades. There are two hypotheses that could help explain these results. The first hypothesis is that these strains could contain two independent PspA genes, one clade 1 gene and one clade 3 or 4 gene. This could have occurred through a transformation event in which the pneumococcus of one clade incorporated DNA of pneumococcus from another clade into its genome. The

second hypothesis is that there is only one PspA gene, but it is expressing both clade 1 and clade 3 or 4 regions. A similar transformation event could have resulted in this.

Insufficient data does not allow a definitive answer; the data presented in this paper supports both of these hypotheses. By comparing the DNA sequence in V24 (Figure 4) and V26 (Figure 5) with the sequences of known strains (Figure 2), 100% homology with strain Ef3296a is seen for V24, and ~90% homology with Bg11703a is seen for V26. No clade 1 region is seen in the vicinity of the sequence where clade 1 would normally be seen. However, the DNA sequence of V26 with a clade 1 primer (Figure 6) clearly shows a clade 1 product as compared with other clade 1 strains (Figure 2). In other words, when sequencing with a clade 4 primer, there should be at least some homology in the sequence with clade 1 control strains. However, V26 did not show a clade 1 region when sequenced with a clade 4 primer, yet it did have a clade 1 region when sequenced with a clade 1 primer. One possible conclusion is that this could only result from having two separate PspA genes expressing two distinct clades, supporting the first hypothesis. However, this data does not draw any definite answers; the second hypothesis should not be discounted. These products could still be coming from the same PspA gene, yet the location of the clades on the gene could be quite different from what has been previously known (Figure 2).Further sequencing will be required to know for certain whether both products came from the same gene or whether two PspA genes might be present in these strains.

The results from this project should give a better understanding and reasoning into the possibilities of developing a PspA vaccine. The three strains that were sequenced distinctly indicate a large degree of homology existing among the V19-V26 strains. Although there were slight discrepancies in the sequences, there were also conserved regions on the PspA gene. If a proportion of homology can be identified within this clade system using other strains, then a PspA vaccine would be extremely lucrative.

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Table 1

Strain	Date Obtained from Patient	Capsular Type	PspA Serotype
V19	10/15/92	19	0
V21	10/14/93	19	16
V22	01/25/93	19	16
V23	03/17/93	19	16
V24	04/08/93	19	16
V25	06/15/93	14	34
V26	06/24/93	14	34

Table 1: List of *Streptococcus pneumoniae* strains obtained from Vanderbilt University. Each strain is listed in the far left-hand column. The next column to the right lists the dates the strains were taken from the patient. The next column to the right shows the capsular type present on each strain. The last column indicates the PspA serotype for each strain. Note the strain V19, V21 through V24, and V25-V26 each posses differing capsular type and/or PspA serotype.

Table 2

Oligonucleotide Primer	Description of Primer
SKH55	Used to cut the DNA on the 5' end of the PspA gene
SKH53	Clade 1-specific 3' primer
SKH54	Clade 2-specific 3' primer
SKH52	Clade 3 or 4-specific 3' primer

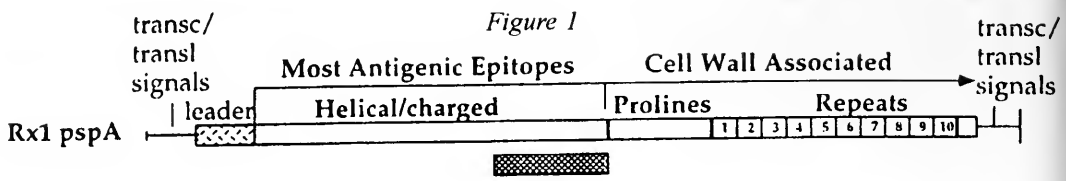
Table 2: List of primers used to cut the DNA from the PspA gene in specific locations. Each primer is listed in the left-hand column with a short description of its use to the immediate right. The SKH55 primer was used in all experiments to cut in the same location on the 5' end while other primers were used to cut in differing 3' clade-specific regions.

Table 3

Strain	SKH55/ SKH53 clade 1 test	SKH55/ SKH54 clade 2 test	SKH55/ SKH52 clade 3 or 4 test	Clade assign. based on PCR results	Clade assign. based on seq. results
V19	n/a	n/a	1100f	4	4
V20	n/a	n/a	n/a	n/a	n/a
V21	850	n/a	1200	1,3 or 4	1 & 3
V22	850	n/a	1200	1,3 or 4	1 & 3
V23	850	n/a	1200	1,3 or 4	1 & 3
V24	850	n/a	1200	1,3 or 4	1 & 3
V25	850	n/a	1250f	1,3 or 4	1 & 3
V26	850	n/a	1250f	1,3 or 4	1 & 3

Table 3: Electrophoresis gel data obtained from PCR testing on the corresponding strains for the clades 1, 2, and 3 or 4. Each strain is listed in the left-hand column with the size of DNA in basepairs recorded from the gel listed under each clade test. The primers are listed above each column with the respective clade test used. NA indicates that the strain was not amplified with the primers listed. A lower case "f" to the right of a number denotes that the band on the gel was faint. A preliminary clade assignment from the PCR data is listed to the right of the PCR results. A more precise clade assignment is also listed after sequence comparison with other strains.

Figure 1



B

Figure 1: The PspA gene from a thoroughly-examined *S. pneumoniae* strain, Rx1. There are two distinct regions on this gene. The right portion of this gene is associated with the binding PspA to the surface of the cell. It is composed of a proline-rich area and a series of ten choline repeats. The left-hand segment is the helical/charged area, which is known for its antigenic effects. Specifically of interest is the highlighted B region of the gene. This part of the helical/charged area is highly variable and is suspect of creating a cross-antigenicity against many strains.

Figure 2

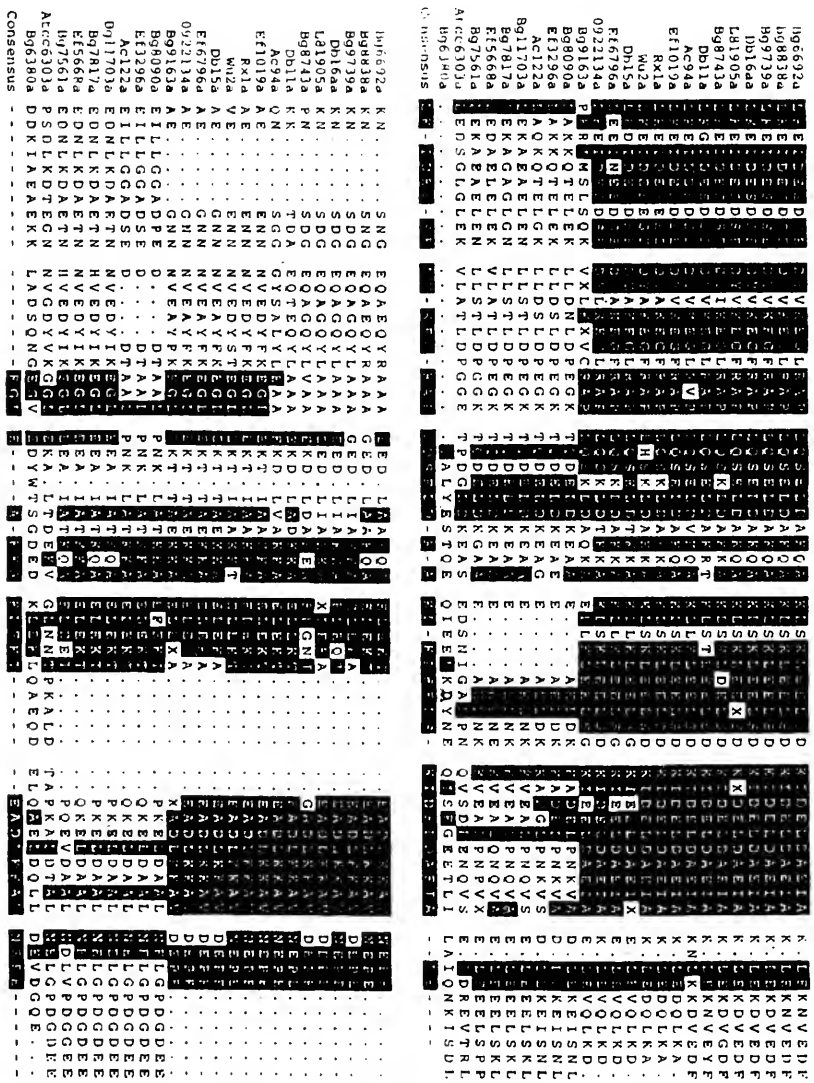
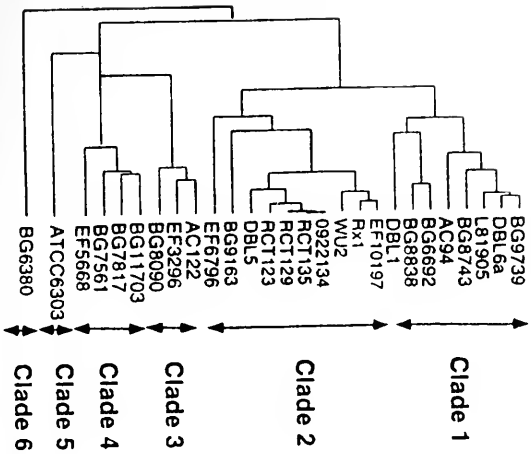


Figure 2a



Figures 2 and 2a: B region DNA sequences of a wide range of *S. pneumoniae* strains. To the right of each strain is the amino acid sequence, with each letter representing an amino acid. The sequence runs from right to left, starting at the top left, continuing on the second row and ending at the bottom right. At the bottom of the strain list is a consensus sequence which corresponds with the darkened areas in the listed strains. The consensus sequence represents ~50% homology among these strains. The strains assigned to clade 1, 3, and 4 have been highlighted. The figure below is the same list of strains divided into their respective clades. The clade 1 strains are highlighted in blue, clade 3 in yellow, and clade 4 in orange.

Figure 3: The DNA sequence of the V19 strain using SKH52, a clade 4-specific primer. Each row is subdivided into two separate rows. The upper row is the exact nucleotide sequence, while the lower row is the amino acid sequence consisting of one letter abbreviations corresponding to the three nucleotides above each letter. The nucleotides are the number at the beginning of each row. The blue-highlighted sequence matches the blue-highlighted region on Figure 2 correlating to clade 4 strains.

```
1    TGAACTTCCA AAATAAAGTT GCTGATTTAG AAAAAGAAAT
       N  F  Q    N  K  V    A  D  L    E  K  E  I
41   AGCTGATGCT GAAAAAACGG TAGCAGATTT AGAAAAAGAA
       A  D  A    E  K  T  V    A  D  L    E  K  E
81   GTTGCTAAAC TTGAAAAAGA TGTAGAAGGT TTCAAAGAAT
      V  A  K  L    E  K  D    V  E  G    F  K  E
121  CAGATGGTGA ATATGCCAAA TTCTACCTTG AAGCTGCTGA
     S  D  G  E    Y  A  K    F  Y  L  E    A  A  E
161  AAAAGACCTA GCTACTAAAA AAGCTAAATT AGCAGAAGCT
       K  D  L    A  T  K  K    A  K  L    A  E  A
201  AAAATTAAAG CTGCTACTAA AAAAGCTGAA TTAGAACCTG
      K  I  K  A    A  T  K    K  A  E    L  E  P
241  AATTAGAAAA AGCAGAAGCT GAACTTGAAA ACCTATTATC
     E  L  E  K    A  E  A    E  L  E  N    L  L  S
281  TACACTAGAC CCTGAAGGTA AGACTCAGGA TGAATTAGAT
       T  L  D    P  E  G  K    T  Q  D    E  L  D
321  AAAGAAGCTG CTGAAGCTGA GTTGAATAAA AAAGTTGAAG
      K  E  A  A    E  A  E    L  N  K    K  V  E
361  CTCTTCAAAA CCAAGTTGCT GAATTAGAAG AAGAACTTTC
     A  L  Q  N    Q  V  A    E  L  E  E    E  L  S
401  AAAACTTGAA GATAATCTTA AAGATGCTGA AACAAACAAC
       K  L  E    D  N  L  K    D  A  E    T  N  N
441  GTTGAAGACT ACATTAAAGA AGGTTTAGAA GAAGCTATCG
      V  E  D  Y    I  K  E    G  L  E    E  A  I
481  CGACTAAACA AGCTGAGTTA GAAAAAACTC AAAAAGAGTT
     A  T  K  Q    A  E  L    E  K  T  Q    K  E  L
521  AGATGCAGCT CTTAATGAGT TAGGCCCTGA TGGNNAA
       D  A  A    L  N  E  L    G  P  D    G  ?
```

Figure 4: The DNA sequence of the V24 strain using SKH52, a clade 4-specific primer. Each row is subdivided into two separate rows. The upper row is the exact nucleotide sequence, while the lower row is the amino acid sequence consisting of one letter abbreviations corresponding to the three nucleotides above each letter. The nucleotides are the number at the beginning of each row. The yellow-highlighted sequence matches the yellow-highlighted region on Figure 2 correlating to clade 3 strains.

```
1    AAACAAGCTG AGTTAGCAAA AAAACAAACA GAACTTGAAA
      K  Q  A  E   L  A  K   K  Q  T   E  L  E
41   AACTTCTTGA CACCCTTGAT CCTGAAGGTA AGACTCAGGA
     K  L  L  D   T  L  D   P  E  G  K   T  Q  D
81   TGAATTAGAT AAAGAAGCAG AAGAAGCTGA GTTGGATAAA
      E  L  D   K  E  A  E   E  A  E   L  D  K
121  AAAGCTGATG AACTTCAAAA TAAAGTTGCT GATTTAGAAA
      K  A  D   E  L  Q  N   K  V  A   D  L  E
161  AAGAAATTAG TAACCTTGAA ATATTACTTG GAGGGGCTGA
     K  E  I   S  N  L  E   I  L  L  G   G  A  D
201  TCCTGAAGAT GATACTGCTG CTCTTCAAAA TAAATTAGCT
      P  E  D   D  T  A  A   L  Q  N   K  L  A
241  GCTAAAAAAG CTGAGTTAGC AAAAAAACAA ACAGAACTTG
      A  K  K   A  E [L  A   K  K  Q   T  E  L
281  AAAAACTTCT TGACAGCCTT GATCCTGAAG GTAAGACTCA
     E  K  L   L  D  S  L   D  P  E  G   K  T  Q
321  GGATGAATTA GATAAAGAAG CAGAAGAAGC TGAGTTGGAT
      D  E  L   D  K  E  A   E  E  A   E  L  D
361  AAAAAAGCTG ATGAACTTCA AAATAAAGTT GCTGATTTAG
      K  K  A   D  E  L  Q   N  K  V   A  D  L
401  AAAAAGAAAT TAGTAACCTT GAAATATTAC TTGGAGGGGC
     E  K  E   I  S  N  L   E  I  L  L   G  G  A
441  TGATTCTGAA GATGATACTG CTGCTCTTCA AAATAAATTA
      D  S  E   D  D  T  A   A  L  Q   N  K  L
481  GCTACTAAAA AAGCTGAATT GGAAAAAACT CAAAAAGAAT
      A  T  K   K  A  E  L   E  K  T   Q  K  E
521  TAGATGCAGC TCTTAATGAG TTAGGCCCTG ATGG
     L  D  A   A  L  N  E   L  G  P  D  G]
```

Figure 5: The DNA sequence of the V26 strain using SKH52, a clade 4-specific primer. Each row is subdivided into two separate rows. The upper row is the exact nucleotide sequence, while the lower row is the amino acid sequence consisting of one letter abbreviations corresponding to the three nucleotides above each letter. The nucleotides are the number at the beginning of each row. The yellow-highlighted sequence matches the yellow-highlighted region on Figure 2 correlating to clade 3 strains.

```
1    AGCAAAAAAA CAAACAGAAC TTGAAAAACT TCTTGACAGC
      A  K  K  Q  T  E  L  E  K  L  L  D  S
41   CTTGATCCTG AAGGTAAGAC TCAGGATGAA TTAGATAAAG
      L  D  P  E  G  K  T  Q  D  E  L  D  K
81   AAGCAGAAGA AGCTGAGTTG GATAAAAAAG CTGATGAACT
      E  A  E  E  A  E  L  D  K  K  A  D  E  L
121  TCAAAATAAA GTTGCTGATT TAGAAAAAGA AATTAGTAAC
      Q  N  K  V  A  D  L  E  K  E  I  S  N
161  CTTGAAATAT TACTTGGAGG GGCTGATTCT GAAGATGATA
      L  E  I  L  L  G  G  A  D  S  E  D  D
201  CTGCTGCTCT TCAAAATAAA TTAGCTACTA AAAAAGCTGA
      T  A  A  L  Q  N  K  L  A  T  K  K  A  E
241  ATTTGAAAAA ACTCAAAAAG AATTAGATGC AGCTCTTAAT
      F  E  K  T  Q  K  E  L  D  A  A  L  N
281  GAGTTAGGCC CTGATGG
      E  L  G  P  D  G
```

Figure 6: The DNA sequence of the V26 strain using SKH53, a clade 1-specific primer. Each row is subdivided into two separate rows. The upper row is the exact nucleotide sequence, while the lower row is the amino acid sequence consisting of one letter abbreviations corresponding to the three nucleotides above each letter. The nucleotides are the number at the beginning of each row. The orange-highlighted sequence matches the orange-highlighted region on Figure 2 correlating to clade 1 strains.

```
1    CGAAAGGAAG AAAAACCAGN TTNTGAAGCG GAACAAAAAG
      R  K  E  E   K  P  ?   ?  E  A   E  Q  K
41   CAAATCTGCA GTATCAACTA AAGTTGCGTG AATATATTCA
     A  N  L  Q   Y  Q  L   K  L  R  E   Y  I  Q
81   GAAAACAGGC GACAGAAGTA AGATTCAGAA AGAAATGGAG
       K  T  G   D  R  S  K   I  Q  K   E  M  E
121  GAAGCTGAAA AAAAACATAA GAATGCAAAA GCAGAATTTG
      E  A  E  K   K  H  K   N  A  K   A  E  F
161  ATAAGGTTAG AGGAAAGGTG ATTCCTAGCG CGGAAGAGTT
     D  K  V  R   G  K  V   I  P  S  A   E  E  L
201  AAAAGAGACT AGACGAAAAG CAGAAGAGGC TAAAGCAAAA
       K  E  T   R  R  K  A   E  E  A   K  A  K
241  GAAGCAGAAC TTACTAAAAA AGTAGAAGAA GCTGAGAAAA
      E  A  E  L   T  K  K   V  E  E   A  E  K
281  AAGTTACTGA AGCCAAACAA AAATTGGATG CTGAACGTGC
     K  V  T  E   A  K  Q   K  L  D  A   E  R  A
321  TAAAGAAGTT GCTCTTCAAG CCAAAATCGC TGAATTGGAA
       K  E  V   A  L  Q  A   K  I  A   E  L  E
361  AATCAAGTTC ATAGACTAGA AACAGAACTC AAAGAGATTG
      N  Q  V  H   R  L  E   T  E {L   K  E  I
401  ATGAATCTGA CTCAGAAGAT TATGTTAAAG AAGGTCTCCG
     D  E  S  D   S  E  D   Y  V  K  E   G  L  R
441  TGTCCCTCTT CAATCTGAAT TGGATGTTAA GCAAGCTAAA
       V  P  L   Q  S  E  L   D  V  K   Q  A  K
481  CTATCAAAAC TTGAAGAGTT GAGTGATAAG ATTGATGAGT
      L  S  K  L   E  E  L   S  D  K   I  D  E
521  TAGACGCTGA AATTGCAAAA CTTGAAAA
     L  D  A  E   I  A  K   L  E  N}
```

Jeremy Rogers is a sophomore biology major who hopes to attend medical school upon graduation. This research project is a culmination of his Interim experience.

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Evaluation of Willner's Theory of Serotonergic Dysfunction

A Holistic Approach to 5-HT

by Jason D. Shumake

In *Psychopharmacology: The Fourth Generation of Progress*, Jacobs and Fornal (1995) summarize the results of almost fifty years of serotonin research with a couple of sentences: "Serotonin is an enigma. It is at once implicated in virtually everything, but responsible for nothing" (p. 461). Far from being flippant, this statement accurately assesses current knowledge of the serotonergic system and reflects an annoying paradox.

Namely, since 1948, serotonin (5-HT) has received extensive research attention, resulting in a plethora of interesting data. Serotonin plays a role in the regulation of sleep, appetite, circadian rhythm, and psychological states such as anxiety, depression, and aggression (Meltzer & Lowy, 1987). Moreover, with the development of selective serotonin reuptake inhibitors (SSRI) such as Prozac, 5-HT has become a sort of psychiatrists' "whipping boy," targeted for the treatment of dozens of seemingly diverse mental disorders (Table 1). Yet, serotonin's role in these phenomena remains enigmatic, lacking a theoretical system that explains what this neurotransmitter is doing in so many places at once.

The question at hand is whether serotonin's contributions to various psychiatric disorders are fundamentally similar or different. Or put another way, *can the clinical effects of the serotonergic system be explained in terms of a holistic theory?* In addressing this question, I will first discuss why it is inherently difficult to formulate such a theory, and then I will discuss how one such theory--Willner's (1989) theory of serotonergic dysfunction--confronts these difficulties.

Difficulties in formulating a holistic theory of serotonergic dysfunction

According to Heninger (1995), attempting to develop a simple holistic scheme for the serotonergic system is fraught with several problems. For one, there are several different types of serotonin receptors that may carry out radically different functions. For example, the 5-HT1D receptor has been implicated in the vasoconstriction of cerebral arteries and migraine headaches, while receptor 5-HT2, the binding site for lysergic acid diethylamide (LSD), has been implicated in psychosis and depression. Additionally, individual receptor types may have different sensitivities depending on where they are located in the nervous system, perhaps ac-

counting for the multiple roles of the 5-HT1A receptor, which may act as an anxiety reliever, depression fighter, alcoholism manager, and/or appetite regulator (Malone & Mann, 1993). Consequently, receptor diversity challenges the formation of an "all-encompassing" theory of the serotonergic system.

Compounding the confusion of receptor diversity is the 5-HT3 receptor, which modulates the systems of several other neurotransmitters such as dopamine, norepinephrine, and acetylcholine (Malone & Mann, 1993). Applying this information, one theory of bipolar disorder suggests that a faulty serotonin system may fail to modulate the other systems, thus allowing the other transmitters to run amuck. This, in turn, might lead to the manic-depressive cycling of mood. Regardless of the legitimacy of this theory, it illustrates how the serotonergic system may be inextricably enmeshed with other neurotransmitter systems. It may be difficult, if not impossible, to ascribe a clinical effect to a single mechanism because of these interactions (Heninger, 1995).

There is one final thorn for the would-be holistic theorist-- the often confusing, seemingly conflicting reaction mechanisms of biological psychotherapies, including antidepressant drugs and electroconvulsive therapy (ECT). Generally, antidepressants reduce the number of 5-HT2 receptors, while ECT increases them (Nathan, Musselman, Schatzberg & Nemeroff, 1995). SSRIs desensitize presynaptic inhibitory 5-HT autoreceptors, while MAOIs desensitize *post*synaptic responses to 5-HT (Willner, 1989). Finally, the actions of individual classes of drugs are often paradoxical as well. For example, SSRIs initially reduce the firing rate of 5-HT neurons, but eventually desensitize 5-HT autoreceptors, increasing the firing rate (Willner, 1989).

All of this information leaves one in the dark as to whether improved affect and behavior results from increased serotonin transmission decreased serotonin transmission, or either increased or decreased transmission, depending on interacting factors. Additionally, there is the issue of how 5-HT transmission affects other disorders such as obsessive-compulsive disorder and eating disorders.

Clearly, formulating a holistic theory of the serotonergic system entails many difficulties and may even be impossible. However, this has not stopped neuroscientists from trying to synthesize the quagmire of 5-HT research into a coherent scheme. I will now turn to a discussion of one such attempt to make sense of the serotonin enigma: Willner's (1989) theory of serotonergic dysfunction, which suggests that the crucial function of 5-HT is to facilitate social cooperation and impulse control, which are characteristically absent across all the disorders for which serotonin agonists are effective.

Evidence for Willner's theory

Willner's theory first hinges on the conclusion that biological therapies for depression (and the other disorders mentioned in Table 1) increase serotonergic transmission. As stated in the previous section, this conclusion is complicated by

apparently conflicting actions within and among various biological therapies. Willner argues, however, that the conflicts are superficial, and that the net effect of these therapies is *always an increase* in serotonergic transmission. For example, even though ECT increases 5-HT receptors and antidepressants reduce them, in the latter case, increased production of and/or sensitivity to serotonin more than offsets the loss of receptors. The same goes for the SSRI vs. MAOI conflict. This hypothesis of increased serotonergic transmission is supported by the finding that ECT increases behavioral responses to 5-HT agonists, and electrophysiological studies show that ECT, SSRIs, and MAOIs increase transmission through forebrain 5-HT synapses (Willner, 1989).

> Willner's theory. . . suggests that the crucial function of 5-HT is to facilitate social cooperation and impulse control.

If biotherapies work to increase serotonergic transmission, then one might hypothesize that all of the disorders mentioned in Table 1 are characterized by abnormally low serotonergic transmission. The strongest support for this conclusion comes from studies of cerebrospinal fluid (CSF) 5-HIAA, a metabolite of serotonin thought to be indicative of 5-HT turnover in the brain (Willner, 1989). Low levels of CSF 5-HIAA are present in depression, bipolar disorder (in both the manic and depressive phases), obsessive-compulsive disorder (OCD), and bulimia (Willner, 1989; Swann, 1993; Tollefson, 1995; Kaye, Weltzin, & Hsu, 1993), though these findings are not fully conclusive. The evidence is much stronger, however, for low levels of CSF 5-HIAA in suicide.

According to Willner (1989), eleven out of twelve studies have replicated the connection between suicide and low CSF 5-HIAA. There is also strong evidence that murderers and other violent offenders have below-normal 5-HIAA levels, and 5-HT lesioned animals are more likely to be hyperactive and aggressive (Willner, 1989). These findings have led to the popular conclusion that the serotonergic system primarily functions as an aggression mediator. (Suicide in this case is interpreted as aggression directed against oneself.)

While this conclusion is logical, it may reflect hasty reasoning. An equally plausible explanation is that the serotonin system inhibits impulsive behavior. In fact, in light of evidence that low CSF 5-HIAA is associated with impulsive, but not premeditated violence (Willner, 1989), this is the more likely explanation. Also, impulsive behavior is a more inclusive, unifying category than aggressive behavior; that is, impulsive behavior not only includes aggressive behavior, but also encompasses the compulsive rituals associated with OCD, the binge-eating associ-

ated with bulimia and obesity, the binge-drinking associated with alcoholism, and the various uninhibited behaviors associated with mania.

Staying with this line of thought, feelings of depression and anxiety might develop as a result of these impulsive behaviors. For example, impulsive behaviors might lead to social rejection and alienation. One might even view obsessive or negative thinking as a *form* of impulsive behavior, which alternatively may be viewed as a lack of self-control over thoughts, feelings, and actions. This would nicely incorporate the obsessive component of OCD and the cognitive theory of depression (which states that thoughts influence feelings and behavior). Thus, we no longer have to attribute the multiple "roles" of 5-HT1A to varying sensitivities or neural locations. It makes just as much sense to look for a common denominator among the disorders listed in Table 1. In this respect, impulsive thinking and/or behavior is a compelling theoretical link.

Impressively, Willner's theory goes even further to explain how psychopathology might develop. Basically, he argues that social isolation reduces 5-HT turnover, a well-established phenomenon in animal studies (Willner, 1989). For example, social isolation causes hyperactivity and aggression in rats, and both phenomena are reduced by antidepressant drugs. Similarly, loss of a loved one during childhood or family discord, both of which are long-established correlates of depression (Davison & Neale, 1994), may predispose humans to low CSF 5-HIAA levels. Supporting this hypothesis, low scores on socialization scales and behavioral problems in childhood have been associated with low CSF 5-HIAA levels (Willner, 1989).

Thus, social stress and/or genetic predisposition may lead to a hypoactive serotonergic system, which, in turn, might lead to poor impulse control and might be diagnosed as any number of psychological disorders, depending on interacting factors. Vice versa, SSRIs and other biological therapies may work, in effect, by chemically mimicking an increase in social reinforcement (Willner, 1989).

Evidence against Willner's theory

The evidence against Willner's theory is sparse yet challenging in its implications. For one, CSF 5-HTAA levels are not the most reliable, or even valid, indicators of serotonin levels in the brain. The levels are influenced by variables such as age, sex, height, season, time of day, drug intake, medical conditions, diet, physical activity, lumbar puncture intervertebral space location, subject position, amount of CSF drawn, handling and storage of CSF, and analytic methods (Malone & Mann, 1993). In addition, serotonergic hypofunction appears to be a *trait* marker of depressive individuals, rather than a marker of the depressed *state* itself; that is, in a substantial proportion of patients, CSF 5-HIAA levels remain low after recovery.

The most challenging piece of evidence, though, is a study in which OCD patients, who had responded to SSRI treatment, were studied with a tryptophan depletion procedure. Depletion of tryptophan,

which is a precursor to serotonin, antagonizes the serotonergic system, resulting in decreased transmission. Willner's theory predicts that this decreased transmission would result in increased impulsivity, and in this case, increased obsessive-compulsive behaviors. However, it was found that only depressive symptoms worsened and that there was no change in ratings of OCD symptoms (Heninger, 1995). This finding seems to refute Willner's theory and favors the viewpoint that the 5-HT systems responsible for OCD improvement are different in their pharmacology than the 5-HT systems related to depression improvement. Heninger concludes the following:

> It can be seen that even though a common factor may underlie some disorders . . . it is not possible to reduce the divergence of the clinical effects of SSRI treatment to any simple holistic scheme . . . . [T]he 5-HT system is more like a chameleon; that is, in each instance it reflects different properties, each one strongly influenced by the system that it is modulating. (p. 478)

Discussion

In review, the problems with a holistic approach to the serotonergic system are as follows: (1) differential sensitivity to 5-HT, (2) influence of 5-HT receptor subtype and location, (3) interactions with other transmitter systems, and (4) apparently conflicting pharmacology of various biotherapies across various clinical conditions. Despite these problems, I feel that there is greater evidence in favor of Willner's theory than there is against it. Even though CSF 5-HTAA levels are not the most reliable or even valid entities, they are currently the best indicators that can be taken from living human subjects. In addition, due to the high replicability of many of the findings, exerting greater control of the CSF 5-HTAA variables could result in even greater support for Willner's theory, not less. Additionally, even though CSF 4-HTAA levels remain low in depressed patients who have recovered, this does not imply that serotonergic transmission has not changed. Again, it is possible for receptor number and/or sensitivity to increase, resulting in a net increase of transmission without an increase in serotonin turnover. Finally, although the OCD study is not easy to dismiss, (1) it has not been replicated, and (2) it actually *supports* Willner with regard to depression, which *did* vary according to amount of serotonergic transmission. And with all fairness to Willner, depression is the major focus of his theory. He only mentions his theory's possible implications to other disorders as a sidenote, which I took the liberty of emphasizing.

Furthermore, if current knowledge of receptor types is taken into consideration, Willner's theory becomes especially convincing if restricted to the 5-HT1A system, in which the impulsivity link seems most applicable. If this is the case, then the OCD study cited by Henninger may be assimilated into Willner's theory with the following reasoning: (1) OCD has components of impulsive behavior, which

is regulated by 5-HT1A receptors. (2) Depression may be directly influenced by 5-HT2 receptors and indirectly by 5-HT3 receptors. (3) The tryptophan depletion procedure may have affected receptor systems 5-HT2 and/or 5-HT3 without affecting 5-HT1A. (4) Further depletion or serotonergic antagonism might have affected 5-HT1A , resulting in the predicted return of OCD symptoms. Thus, the enigma of serotonin probably cannot be captured by a simple, unqualified holistic approach, but holistic ideas need not be excluded from the research process.

Table 1

Clinical areas influenced by altered 5-HT function:

Affective disorders
Substance abuse
Anxiety disorders
Pain sensitivity
Obsessive-compulsive disorder
Emesis disorder
Mycoclonis
Schizophrenia
Neuroendocrine regulation
Eating disorders
Circadian rhythm regulation
Sleep disorders
Stress disorders
Sexual disorders
Carcinoid syndrome
Impulse disorders
Developmental disorders
Aging and neurodegenerative disorders

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The Long-term Impact of Nazi Involvement in the Spanish Civil War

by Adam Slaughter

In studying Nazi Germany and World War II, scholars have long speculated about the reasons for Germany's military defeat. The German Luftwaffe should have continued its bombing of military targets in England instead of bombing civilian targets in London. Or perhaps German forces should have continued to Moscow instead of attacking Stalingrad to the south.

As always, one can present another argument: Germany should have secured its southwestern flank and closed the Mediterranean to the Allies. Why was Germany not able to accomplish this seemingly easy task? After all, Germany had helped Francisco Franco in his efforts to reclaim Spain from the "Bolshevistic" Republicans. So why did Franco, whose ideology appeared similar to Adolf Hitler's and Benito Mussolini's, not help the Axis cause in taking Gibraltar and in securing Northwest Africa? The answer is rooted in the Nazi involvement in the Spanish Civil War and in Hitler overlooking Spain's strategic importance. Hitler wanted to exploit Spain and use the Civil War as a means for other goals. However, German involvement in the Spanish Civil War had, in the long-term, no positive payback for Germany because the nationalistic, opportunistic General Franco kept Spain out of World War II, thus keeping the Mediterranean Sea open to the Allies.

To begin with, how did Germany become involved in the Spanish Civil War? After leftist Republicans of the Popular Front came to power in early 1936, many right-wing Nationalists in the military became increasingly hostile to the government. With the assassination of the Nationalist leader José Calvo Sotelo on July 13, tensions increased (Whealey 151), and a few days later Spanish forces in Morocco revolted. The Spanish general Francisco Franco headed to Tetuán, Morocco, from his post at the Canary Islands to lead the Nationalist forces. However, he faced the problem of having his army cross the Strait of Gibraltar while the Spanish Navy was still controlled by the Republican forces.

Hitler responded to a July 25th message from Franco requesting assistance by sending transport planes to airlift Franco's forces to Spain. These forces included 20 tri-motor Junker transports as well as six escort fighters (Whealey 7). Between July 29 and August 5, German aircraft carried 1,500 men from Morocco to Seville (Thomas 28). Operation *Feuerzauber*, as the "first successful large-scale airlift in history" was called, transported 13,523

men from Africa to Seville by October 11 (Whealey 101). In 1942, a frustrated Hitler would remark about the importance of German help, "Franco ought to erect a monument to the glory of the Junkers 52. It is this aircraft that the Spanish Revolution has to thank for its victory" (qtd. in Thomas 28).

The German decision to aid the Nationalists was based on several reasons, including preventing communism from taking hold in Spain. Hitler's propaganda stated that Russia was a threat to Western Europe and that Germany and Italy were the countries to repel the "Jewish-bolshevik" threat (Carr 57). Yet Hitler manipulated the use of the term "anticommunism" as a kind of parallel to the term anti-Christ found in the Book of Revelations in order to unite himself with Franco (Whealey 26). Hitler knew the strength of Catholicism in Spain and realized the practicality of identifying German aid as helping Spain against atheistic communism.

The use of anticommunism also helped to form an alliance with Japan. Japan faced a threat from the Soviet Union as it advanced into China and saw the usefulness of an alliance with Germany against the global Communist International as an excuse to venture into China (Whealey 27). Since the Soviet Union supported the Republicans and supplied the forces with tanks and equipment, Hitler saw the Spanish Civil War as a way to move against the Soviet Union (Whealey 27). Japan realized Germany was fighting a common enemy, communism. Accordingly, on October 23, 1936, they signed the German-Japanese Anti-Comintern Pact. Hitler saw the value of a potential ally on Russia's eastern border, and he took the opportunity to form a closer relationship with Japan during the Civil War.

This anticommunist ideology helped Germany to create the Axis alliance, so part of its decision to aid the Nationalists was for purely diplomatic reasons. Hitler saw Spain's potential in helping Germany's world standing, and communism was simply a justification to intervene. Indeed, in *The Foreign Policy of the Third Reich*, Klaus Hildebrand argues that Hitler's main reason for helping Franco was based on the notion of future benefit for Germany by an expansion into the Iberian Peninsula, thus threatening France and Great Britain (46). This idea of changing the balance of power in Europe seemed at least to serve Hitler well in meeting short-term expansionist goals in the East.

Equally important, Hitler was able to draw Italy closer to the German side. Mussolini had been hesitant about Hitler, and during a 1934 Nazi coup in Austria, Mussolini even sent troops to the Austrian border to thwart the coup attempt and prevent German intervention. The situation in Austria continued to be a problem for Hitler and Mussolini; both leaders seldom discussed Austria (Whealey 35). However, the German-Italian intervention in the Spanish Civil War created a united front for the two countries. This unity diverted Italian attention away from Austria until the matter simply became a moot point with the German annexation of Austria in March 1938.

Italy had an interest in seeing a Nationalist victory in Spain because it had committed $354 million dollars and over 80,000 troops to the Nationalist cause (Whealey 102-103). Mussolini's attention was diverted from concern over Austria to concern about his ground forces as they became entrenched in the bloody Spanish conflict (Whealey 57). Also, German support for the Italian invasion of Ethiopia in 1935 made Mussolini realize the necessity of an alliance with Germany because of French and British opposition as well as the League of Nations' sanctions (Weinberg, *Foreign Policy* 142). By November 1936, Germany and Italy established an alliance that Mussolini would call the Rome-Berlin Axis.

How did Germany directly help the Nationalists militarily as well as benefit militarily from its involvement in the Spanish Civil War? The Nationalists' forces still relied on cavalry, and Soviet tanks had managed to halt the Nationalist advance on the key Republican city of Madrid on October 29, 1936 (Thomas 316). German Foreign Minister Constantin von Neurath found the situation so critical that he wrote to German Military official Admiral Wilhelm Canaris that "the German government does not consider the combat tactics of White Spain... promising of success" (qtd. in Thomas 316). As a result of this feeling of urgency, on November 6, Germany assembled the 6,500-man strong Condor Legion, a force with 48 bombers, a fighter group, a seaplane, reconnaissance and experimental squadron, and various support personnel and equipment (Thomas 316-317).

Specifically, the Condor Legion helped the German war effort in the Second World War by providing the *Luftwaffe* with valuable experience. The head of the *Luftwaffe* and Hitler's good friend, Hermann Goering, was initially crucial in influencing Hitler to support Franco. Goering's testimony at his 1946 trial in Nuremberg summarizes his discussion with the Führer:

> [G]ive support under all circumstances, firstly in order to prevent the further spread of communism in that theater and, secondly, to test my young Luftwaffe at this opportunity in this or that technical aspect. (qtd. in Harper 16)

Indeed, over twenty-seven planes were tested in the Civil War (Whealey 102). Early in the war, the He 51 proved to be inferior, and subsequently the Me 109B was developed in 1937 (102). Through continued experience, the Me 109E surpassed French and Russian planes as the fastest by 1939 (102). Secondly, as the great military historian B.H. Liddell Hart points out in *History of the Second World War*, aircraft manufacturers of the Me 109 fighters placed two fixed machine guns in the cowlings as well as two 20-mm cannons in the wings as a result of the experience in the Spanish conflict (92).

Furthermore, in *Hitler and Spain: The Nazi Role in the Spanish Civil War, 1936-1939*, Robert H. Whealey provides an outline of nine major military lessons learned in the Spanish Civil War and relates the significance of the Condor Legion as the major contribution from Germany to Franco's war effort. One

lesson includes the spreading "Finger Four" formation, adopted since the close World War I aerial formations no longer applied to the speed of modern airplanes (105). Also, the *Luftwaffe* learned to maintain a more streamlined parts department, thus keeping the infantry more mobile; this system was later applied to the French campaign (107). Next, German pilots returned to flight schools in Germany after tours in Spain to teach other German pilots the latest in aerial techniques (107). Veterans of the Condor Legion trained 200 air crews involved in the Polish campaign (107). The smashing victory in Poland was due in part to the experience of these veteran pilots.

Another crucial lesson involved *Blitzkrieg*. This strategy of "lightning war" saw its initial stages in Spain as fighter-bombers equipped with six 10-kg bombs made successful low level raids from 500 feet on positions which were closely followed by tank and infantry attacks (Wood and Gunston 12). The close air and ground cooperation resulted in major advances of fifty miles a day such as the one during the Catalan campaign in 1938 (Whealey 105). It becomes clear, as Whealey points out, that Spain, not Poland, experienced *Blitzkrieg* first (105). This *Blitzkrieg* technique was responsible, of course, for much of German success in conquering continental Europe during the first part of World War II.

The Condor Legion became an invaluable resource for the eventual Nationalist victory and helped Hitler's foreign policy goals. For instance, after five days of heavy and indiscriminate bombing of the northern Basque town of Durango in April 1937, the Republican forces fled. Then, after bombing the key Basque city of Guernica, where 1,654 civilians died from being machine-gunned and bombed, Republicans began to relinquish their hold in the North and decided to concentrate on securing Madrid (Thomas 419-420). Thus, in this northern offensive, the Nationalists were able to take this iron ore-rich region with German help (the significance of this economic aspect will be seen later) (Thomas 401). Gerhard L. Weinberg describes the further significance of the Condor Legion's bombing:

> The bombings of the Basque towns in 1937... not only horrified the world at the time but also heightened the sense of menace Germany hoped first to create and then to utilize. The belief that another European conflict would probably begin, but certainly end, with the major cities of France and England destroyed from the air was to be a powerful influence on policy in Paris and London. (*Foreign Policy* 164-165).

Hitler used this "sense of menace" at one point in his meeting with the Austrian leader Kurt von Schuschnigg at Berchtesgaden on February 12, 1938. Hitler called on General Hugo Sperrle, former commander of the Condor Legion, to discuss the Spanish situation and thus allude to the consequences of opposing German moves (Whealey 107).

Hitler was now able to fulfill his policy of *Lebensraum*. The Spanish situation gave Hitler some relief from the watchful eyes of France and Britain, and Germany's

annexation of Austria and the Sudetenland in 1938 justified German intervention in Spain (McKale 105). That is, as William Carr suggests, Hitler believed that France would feel more threatened by a fascist Spain on its border rather than by some distant German expansion to the east; moreover, tensions in the Mediterranean would keep British and French attention away from Eastern Europe (69). To Hitler's success, British and French leaders tried a policy of appeasement, and the carnage of the Spanish Civil War fueled by German armaments certainly served as an example of what a war with Germany might entail.

Moreover, the very fact that Hitler wished for a prolonged war lends evidence to the idea that Spain was meant to be a diversion. Hitler wanted international attention on Spain as long as possible, so he could have his way in the East; he sent "assistance not in a flood but in driblets" (Weinberg, *Foreign Policy* 144). For example, the Condor Legion remained at the same level of strength throughout the war (Weinberg, *Foreign Policy* 145). In fact, the frustrated German *chargé d'affaires* to Franco, General Wilhelm Faupel, became voiced such irritation at the slow pace of the war effort, an effort he believed could be quickly won with an increased involvement, that Berlin forced him to resign in August 1937 (Weinberg, *Foreign Policy* 144).

In addition, one sees evidence that economic reasons influenced Hitler's decision to aid the Nationalists in the first place. In *German Economic Policy in Spain During the Spanish Civil War, 1936-1939*, Glenn T. Harper writes extensively on the influence of economic factors on Hitler's decision to aid Franco. In fact, Johannes Bernhardt, a German businessman in Spanish Morocco, jumped at the chance to aid the Nationalists in July 1936. He had close ties through business dealings with the Spanish army and with Franco, so he saw the opportunity to increase commercial relations for himself as well as for the German war machine (13). He flew from Morocco and arrived in Berlin on July 24 with letters to Hitler and Goering from Franco (13). By July 29, the Junkers began the airlift of soldiers to Spain.

Raw materials were crucial for German rearmament. In particular, Germany needed Spanish iron ore since its own production was not keeping up with demand (Harper 17). Although Spain's iron ore deposits were limited, the large amount of mineral content present in the ore mined in the Basque provinces made for a high quality iron product (Harper 17). In the second place, Spain produced half the world's supply of pyrites and mercury (Harper 17). Whealey points out the importance of the pyrite ores as a key material for the chemical industry's production of sulfuric acid; thus the German synthetic, munition, and fertilizer industries needed this ingredient (75). Also, Liddell Hart discusses twenty basic products essential for war, and notes the importance of mercury for detonators (23).

Clearly, Hitler saw the potential to exploit the use of Spain for autarky when the crisis in 1936 arose. He felt Germany would more likely receive raw materials

from a Nationalist Spain than from a left-wing one (Thomas 229). That summer of 1936, when the Spanish Civil War broke out, he had already been planning ways to make Germany more self-sufficient and to create more economic centralization (Whealey 77). Goering, head of the *Luftwaffe*, was also head of the Four-Year Plan which was meant to make Germany more self-sufficient in maintaining reliable sources of raw materials. Goering most likely hoped to please his *Führer* with results, so the *Luftwaffe* leader may have had other intentions for the Condor Legion rather than simply wanting to "test" his *Luftwaffe*.

Furthermore, German aid in dispatching the Condor Legion was not meant to defeat Bolshevism but to obtain payment in the form of raw materials (Harper 18). As mentioned earlier, for instance, Thomas argues that securing the offensive in the iron-ore-rich Basque region was due in part to pressure exerted from HISMA (Sociedad Hispano-Maroquí de Transportes) (401), a German company established by Bernhardt and headquartered in Spanish Morocco with a monopoly on Spanish exports of raw materials to Germany (Harper 19). Since Germany had to import over 80 percent of its iron ore supplies, the lure of an iron ore-rich region is obvious (Harper 17). The aggressiveness of the German participation through its heavy bombing in the Basque offensive indicated the German desire for the Nationalists to conquer this area. After the fall of the Basque port city of Bilbao in 1937, all the available iron ore was shipped to Germany (Weinberg, *Foreign Policy* 150).

> Ultimately Hitler did not see the need to draw Spain into the war. It simply was not worth it to him.

Franco, however, soon realized Germany was using Spain. Thus, during the Second World War, Hitler did not receive the full cooperation from Spain that would have proved beneficial. Germany had benefited in the short-term through diplomatic and military gains, and as Franco became more and more dependent on Germany for victory, Germany increased its demands for exclusive commercial privileges (Harper 31). The Italian ground forces proved to be incompetent in battle, so Franco desperately needed the Condor Legion (Harper 31). Also, Hitler's hopes for a prolonged war, at the expense of alleviating the misery of the Spanish condition in order to make the most favorable condition for Germany diplomatically and economically, showed why Franco would feel a certain amount of bitterness towards Hitler. Franco resented German economic pressure, and on one occasion he stated that he would rather lose all German support than "[surrender] a single particle of Spanish

mineral wealth" (Harper 35). Harper points to the fundamental flaw in Hitler's view of Franco:

> The Nationalist Caudillo, to whom they were sending extensive aid and from whom they expected heavy compensation, was fighting his battles not on behalf of the German Reich but on behalf of his own conceptions of a new and greater Spain... His German allies were soon to learn the pitfalls of counting too heavily on Nationalist Spain as an instrument in their drive toward hegemony over the continent of Europe. (67-68)

Harper indicates how the "bill" for the Condor Legion, in particular, made Franco's victory bitter-sweet. With an apparent Nationalist victory at hand in the spring of 1938 with the Aragon offensive (93), Franco proposed a new mining law in May which would reduce foreign participation in mining companies to 25 percent (98). Germany retaliated by implying a threat to reduce the strength of the Condor Legion (103). Fortunately for Hitler, the war in Spain dragged on, and Franco needed the aid of the Condor Legion again. Franco reversed the mining law and allowed German participation above the limit, and the Condor Legion was maintained at its original strength (116). Thus, the Condor Legion was tied to mineral wealth. By the time a Nationalist victory was assured, the German embassy wanted Franco to recognize the bill of 190,377,890.23 RM for the Condor Legion (113). After three years of bloody fighting and a drained treasury, Spain was in no position to pay this sum, so Germany gained more concessions in Spain by demanding mining rights for HISMA (119). Naturally, Franco's resentment was heightened. What about the crusade against the "Jewish-bolshevik" threat Hitler had talked about in his original justification to aid Spain? When World War II broke out, Franco dragged his feet. At the end of the long struggle in the spring of 1939, Franco joined the Anti-Comintern Pact. However, he was in no position to ally Spain militarily with Germany. Spain needed to concentrate on reconstruction and acquiring food and oil from overseas, which was subject to a threat from the Allied blockade (Weinberg, *World* 76). In fact, the food situation was worse in Spain after the Nationalist victory than during the Civil War (Packard 190). Over and over again, Spanish diplomats declared their sympathy with the German cause against communism, but they indicated the poor situation that the people faced. In the summer of 1940, Franco's foreign minister, Ramón Serrano Suñer, related to Hitler that Franco was in no position to ask his people to commit themselves to another war (Beaulac 8).

In addition to Franco's feeling of resentment towards Hitler over the manner in which Germany took advantage of Spain during the Civil War, the events leading up to World War II, as well as the early stages of the War, tended to further distance Franco from Hitler and confirm the correctness of declaring Spain's neutral stance. The Hitler-Stalin Pact in August 1939 confirmed to Franco that

Hitler was not attempting a crusade against Bolshevism (Weinberg, *World* 76). Franco even sent Spanish arms to the Finns when the Soviets attacked Finland in November 1939 (Packard 119). In September, Germany had invaded Catholic Poland. Willard L. Beaulac, an American diplomat in Spain during the war, points out that *fear*, not gratitude or loyalty, really dictated Spain's subsequent dealings with Germany after the invasion of Poland, "a Catholic bulwark against godless communism" (21). Franco's ideology did not fit with the German ideology of expansionism. Franco and Hitler differed in that Franco's main concern dealt with combating atheistic communism.

At the same time, Franco was an opportunist who wanted the best position possible. Hitler's successful Western European campaign in the summer of 1940 made it appear that Germany was on the verge of defeating Great Britain. Weinberg points out that even the entrance of Italy into the war on June 10 did not make Franco join, because "[u]nlike Mussolini, he preferred to have clear assurances from the Germans *before* taking the plunge" (*World* 133). Jerrold M. Packard colorfully adds that, in Franco's view, if Germany took the strategic British Gibraltar, "Hitler would treat both him and his Catholic and Nationalist-oriented regime with all the grace a dog accords a flea" (194).

Of course, Franco wanted to be on the winning side of the war. Although Franco's enemy was communism and not Britain, he would agree to enter the war on the German side under certain conditions. Because Spain had always wanted to recover Gibraltar from Britain since it was taken in 1704, Spain's going to war against Britain would not have been inconceivable (Weinberg, *World* 133). Franco first wanted Germany to increase military and economic aid, so that the still war-devastated country would have less to sacrifice (Packard 200).

In addition, Franco wanted to make territorial gains in Africa at the expense of France. On October 23, 1940, Hitler and Franco met at Hendaye to discuss Spain's possible entry into the War, and what Franco wanted was a written guarantee for French Morocco (Goda 305). The extent of the demands on both sides, however, made Hitler and Franco reconsider. Hitler's main concern was with his collaborationist ally, Vichy France. Already French Equatorial Africa had been reclaimed by DeGaulle's forces with the taking of Gabon in November 1940 (Weinberg, *World* 161). What would stop North Africa from falling to DeGaulle if Franco acquired some of the French territory? Hitler decided to restrain his dealings with Spain (Weinberg, *World* 161). Also, always an extreme nationalist as well as a cold realist, Franco did not like the ideas of giving up Spanish territory for German bases (e.g., one of the Canary Islands) and of risking a total Allied blockade (Weinberg, *World* 207).

Ultimately Hitler did not see the need to draw Spain into the war. It simply was not worth it to him. In June 1940, Hitler believed that the British were already defeated, so why make a high-priced alliance with a poor country for some

distant naval bases? (Goda 299). Then, in November 1940, Hitler proposed Operation Felix which planned the seizure of Gibraltar, but the Spanish hesitance delayed any movement of German troops through Spain (Packard 206). Franco feared a preemptive British invasion, so he requested "inspectors" to assess the situation in Spain first (Packard 207). In correspondence with Hitler, Franco even mentioned that roads might be blocked by snow, thus delaying the movement of the *Wehrmacht* through Spain (Beaulac 17). Hitler was losing his patience. In Joseph Goebbel's diary, Hitler's minister of propaganda shows the frustration that the Nazi regime had with Franco:

> *February 1, 1942*. Franco has delivered a speech, intended chiefly for home consumption, in which he declared that the Spaniards are God's chosen people and will remain faithful to the Catholic Church. It would be more fitting for Spain to remain faithful to the Axis . . . That's a nice revolutionist we placed on the throne! (qtd. in Beaulac 56)

The timing of the Gibraltar invasion would have required immediate cooperation, for Hitler had already planned an attack on Russia in June. In the end, Hitler's ambition was too high to settle on attacking Gibraltar anyway (Liddell Hart 145). He desired a more direct attack against Britain. The attack on the Soviet Union would prove more ambitious, and a victory could quite possibly force Britain to her knees. One of the reasons Hitler decided to attack Russia was to convince Britain that the war was lost, and thus this conquest of Russia, as Hitler believed, would force Britain to withdraw from the war since it still saw the Soviet Union as its main reason to continue fighting (Weinberg, *World* 179).

Furthermore, the failure of Hitler to see the importance of Spain and Gibraltar created an opportunity for the Allies. After Hitler invaded Russia in June 1941, his attention was further diverted from the Spanish question because the majority of German artillery had been shipped to the Russian Front (Liddell Hart 150). Then came Operation Torch, the invasion of North Africa in November 1942 by the Allies. Hitler felt that the Axis position in Tunisia would be enough to prevent further Allied advance (Liddell Hart 333).

Moreover, the British victory at El Alamein in 1942, along with the Soviets' holding of the front in the East, made Franco aware of the distinct possibility of German defeat (Weinberg, *World* 432). Franco had no reason to risk his neck. The best policy for Spain was to remain neutral. To the benefit of the Allies, Spain did not join Germany, thus preventing the necessity for Allied occupation of Spanish Morocco. According to General Dwight D. Eisenhower, such an occupation would have delayed the Allies an estimated three and a half months by having to send five divisions according to (Liddell Hart 333).

Franco prevented a high level of German animosity towards Spain by helping the German war effort to a certain degree, but he kept in mind his nation's own interests. For example, he did allow the refueling of German submarines in Spanish ports (Packard 119). Also, as

Packard continues, with fifty German divisions sitting on the Spanish border after the invasion of France, Franco changed Spain's status from "neutral" to the more threatening "nonbelligerent" (189). Yet Franco saw an opportunity to improve the Spanish economy by increasing taxes on the export of wolfram, a mineral used to produce steel for ammunition that could penetrate steel armor (Leitz 71). The competition between Germany and Great Britain for the acquisition of it placed an economic burden on Germany (80). Then, when Germany invaded Russia, Franco confirmed his ideological consistency by sending the Blue Division to fight on the Russian Front. Perhaps the intent, as Denis Smyth contends in "The Dispatch of the Spanish Blue Division to the Russian Front: Reasons and Repercussions," was also a repayment for the debt owed to Germany for the Condor Legion (539). Smyth continues to say "that the Spanish decision to organize the Blue Division was not the prelude to, but rather a substitute for, their full-scale engagement in the war alongside Germany" (545). Franco maintained a two-faced policy by feigning sympathy for the German war effort until the threat from Hitler changed to a threat from the Allies.

Since it would have hurt Britain's pipeline of goods coming from the Mediterranean Sea and from its Far Eastern Empire, Gibraltar should have been taken in the early stages of the Second World War. Hitler believed England was going to be defeated anyway, so acquiescing to the demands of Franco did not seem necessary. Germany had already begun to cut industrial production. Also, Hitler had hoped for Britain to join with Germany against the eventual struggle in the East with Russia. Of course, Hitler never realized his goal as his war plans fell apart. Thus, by the time of the Allied invasion of France in 1944, Franco was free from having to supply Germany with the extensive supplies that it once had (Weinberg, *World* 752).

Finally, Hitler's diplomatic, military, and economic success as a result of Nazi participation in the Spanish Civil War would later manifest itself in Spanish resentment at seeing itself strung along and used. Franco needed help, and he saw Hitler as the person to help put out the fire. Yet Hitler only "dribbled" out aid so as to avoid any costly involvement in the Civil War. Then, the bill for the Condor Legion "soured opinion" in Madrid regarding the German involvement (Weinberg, *World* 76). Weinberg remarks on the German gains at the expense of the disaster for Spain as a whole:

> The returns to Germany for her role in supporting Franco were thus not so much in later support from Spain, but in the immediate effects of the fighting itself. Ores for German rearmament, the diversion of attention from Central Europe, the strengthened alignment with Italy, all were hopes of Hitler . . . in 1936; and all were realized. (*Foreign Policy* 166)

Ideally, Franco believed that Hitler

should have been willing to do anything to fight Bolshevism and should have felt honored to join in the battle. Consequently, when the time would come in World War II, Franco would not offer full cooperation. As Spanish participation on the Axis side evaporated, Hitler commented:

> If Gibraltar were in the hands of the Axis [it] would extraordinarily ease the situation relative to North Africa . . . especially if two German divisions could be transferred to Spanish Morocco and a few air bases could be set up there. Unfortunately, Franco had failed to recognize the situation. (qtd. in Goda 310-311)

Consequently, the Mediterranean was not plugged.

Ironically, German aid to the Nationalists doomed part of their own future war effort. A Republican Spain surely would have fallen as quickly as France did in 1940, and Gibraltar would have been next. With his Third Reich crumbling in February 1945, Hitler exclaimed, "[W]e ought to have attacked Gibraltar in the summer of 1940, immediately after the defeat of France" (qtd. in Beaulac vii).

Hitler did not understand Franco's nature and situation. Franco performed a balancing act to do just enough to stay out of war and to find the best opportunity for his country. He possessed a kind of nationalist pride that blinded him from seeing the bigger picture in the results of possible cooperation. Possibly, though, Franco also feared the results of co-belligerency and felt a war-torn Spain was in no position to fight another war. Either way, Hitler was not able to recognize Franco's nationalism and did not fully understand that Franco was more of a Catholic-authoritarian dictator than a Fascist-authoritarian one. Thus Franco achieved a kind of revenge on the diplomatic and economic exploitation that had been committed against Spain by Germany.

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Marxist Themes in *Mary Poppins*

by Bard Tomlin

Books and movies such as *Alice in Wonderland* are often popular with children, but have a political message or undercurrent that children do not recognize. *Mary Poppins*, one of the most beloved children's movies of all times, is an example of a children's movie that has a distinctly political message that children cannot help but digest even if they do not fully understand the politics behind the indoctrination. Mary Poppins subverts the English idea of capitalism and colonialism that is dominant in Britain at the beginning of the 20th century (when the film takes place) by presenting an opposing view based on Marxist ideology.

The movie opens in an upper-class neighborhood of London. The family in question is the Banks, which consists of the distant working father, the flighty social-butterfly of a mother, and two slightly rebellious and misguided children. When the father returns home from work, he breaks into a song about his lifestyle. The song which is classist, elitist, and sexist, spouts several ideas that are consistent with Capitalism. George Banks says that he is the "king of his castle" and is thankful for the life he leads. In Marxist terms, Banks feels lucky to be a member of the ruling bourgeoisie. To this point, all the politics have been capitalist, thereby setting up the contrasts that Mary Poppins brings when she arrives.

In an obvious plot scheme, Mary Poppins arrives when "the wind changes." The metaphor about which way the wind is blowing is frequently employed to describe an overall shift in the political climate. One such shift occurs when Mary Poppins arrives. Along with her, Marxism arrives at the Banks house.

Mary Poppins and her Marxism subvert all of George's capitalistic ideas through her influence on the children. On her first outing with the children, Mary, along with Burt (her everyman friend), takes the children inside one of Burt's sidewalk drawings. In this fantasy world, the group stumbles upon some (cartoon) English gentlemen fox hunting. Mary and her minions side with the proletariat and against the bourgeoisie by helping the fox allude the hounds. This activity subverts traditional English hierarchy. In this activity, Mary, Burt, and the children are altering social ranking by helping the oppressed, and participating in what Marx would describes as a "now hidden, now open" battle between the classes

("Communist Manifesto" 448). In this allegorical battle between the classes, Mary and Burt side with a fox who has a thick Irish brogue, an accent considered lower class by the British in the late Victorian period. By helping the fox, an immigrant/proletarian figure, Mary shows her anti-colonialist attitude.

Another way that Mary subverts capitalism and replaces it with Marxism is in her conversations with George. In one conversation, he has the intention of firing her because he does not approve of her methods. Instead, Mary takes control from the start and tells him that he is right, and he should spend more time with the children. But, as part of a capitalist society, George has never spent much time with his children; when he does take them to work for a day, they end up running away, which causes even more trouble.

After the children run away, Burt tells George that it is not his fault; society tells him that he has no time to "wipe his children's tears" because he has to keep "grind, grind, grinding at the grindstone." In this instance, Burt is spouting Marx. Marx says society believes that the work is more valuable than the worker because "the increasing value of the world of things proceeds in direct proportion to the devaluation of the world of men" ("Estranged Labor" 439). George must keep working harder and harder to maintain his social position and his value to the bank. The consequence of capitalism is that he has no time for his family.

The children, like Mary and Burt, also undermine George's sense of capitalism and imperialism. When George takes the children to work, he and the rest of the bank officers talk about the importance of finance. Finance leads to conquest and expanded influence both for the investor and the nation. Strangely, when the men speak of expanding influence, they seem more interested in Great Britain than the individual. They use examples like railways in Africa and "plantations of ripening tea" to reinforce the colonialism and capitalism that run throughout the film. In Marxist terms we can view capitalism and colonialism together because colonialism provides more markets for commodities and allows capitalism to continue to develop.

In contrast, from Mary and Burt the children have learned to focus on enjoying life, so they are resistant to putting their money in the bank, choosing instead to feed the birds. When the bank president decides (for them) that investment is a better choice, he takes the money out of Michael's hand. Michael, and his sister Jane raise a fuss, causing everyone in the bank to worry about the security of their money. They almost cause the bank to collapse with the fear and panic they start. In the confusion, they grab back their coins and run away.

As a result of the panic, George gets fired. Although the bank officers say that it is regrettable, Marx would say it

is inevitable. England, being a capitalist society, finds the work more valuable than the worker. Marx expresses this point in "Estranged Labour" when he says "the worker sinks to the level of a commodity and becomes indeed the most wretched of commodities, that the wretchedness of the worker is in inverse proportion to the power and magnitude of his production" (438). Banks was in charge of a great deal of money and responsible for making more. When Banks ends up costing the bank money, the officers have no trouble firing him because the money is more important than he is.

After they run away, the children get lost in a rundown part of London near the wharf. This scene provides an obvious contrast to their own neighborhood on Cherry Tree Lane. In this neighborhood, every one is poor and none of them are friendly; on Cherry Tree Lane the children are friends with their well-to-do neighbors. This scene raises the idea of private property that is prevalent in Marxism. At the wharf, we see people that do not own any property and have been alienated from bourgeois society. It is this system of private property and alienated labor that creates a city with one section of mansions and manicured lawns and another of factories, wharves, smog, and open sewers. Private property allows the bourgeoisie of London to separate themselves socially and physically from the proletariat. In *Mary Poppins* this separation is especially pronounced. Cherry Tree Lane is separated from the wharf by the downtown business section and a park.

> Mary Poppins and her Marxism subvert all of George's capitalistic ideas through her influence on the children.

While at the wharf, the children accidentally run into Burt, who brings them back to their house. On the way, they stop and have another adventure, this time on the rooftops with the chimney-sweeps of London. The chimney-sweeps are an example of the "masses of labourers" ("Communist Manifesto" 453). They are crowded into jobs that no one would want and are at the mercy of the bourgeoisie. Chimney-sweeps and other laborers are dependent on the bourgeoisie for survival. If someone quits, it does not matter because there is always someone to fill the opening. Again, the work and not the worker is what drives the society.

Burt also mentions the "social rungs" and says that one might think he is on the lowest rung, but he is not because

he is happy. This is another subversion of the British capitalist ideal. Indifference to the production of goods shows disinterest in the capitalist system, something Marx advocates. When Burt gets tired of chimney-sweeping, he becomes a musician, and when he gets tired of that, he does something else. For Burt, the rooftops are the best place to be because one can see the sunset and all of London; however, no one ever goes up there except for the birds and the chimney-sweeps. The proletariat inhabits whatever space the bourgeois society does not want.

In comparing Burt and Mary, we find that they are both to some extent Wage-Laborers. In his various jobs, Burt constantly competes with other workers for money. He contends with other street entertainers for contributions and with other chimney-sweeps for a piece of that business. As Marx suggests, it is his own labors that drive Burt deeper into poverty. Like Burt, Mary would be in competition with hundreds of other nannies applying for the position with the Banks family if she had not used her magic powers to drive all the other applicants away. This system of Wage-Labor and competition leads to a minimum wage, which creates a meager existence for the Wage-Laborer. Burt justifies his existence by saying that being poor is not so bad because he is happy and lucky.

Finally, it is also interesting to note that the two Marxist figures, Mary and Burt, are the only characters who do not have a proper British accent. Mary has a slightly bland, Americanized pronunciation, and Burt speaks with a thick, lower-class, Cockney dialect. All the other characters, even the other servants, speak with a precise British inflection. This is further evidence that although Marxism clashes directly with capitalism, we are to side with Marxism because it is the two most charming characters who spout this philosophy.

Mary Poppins is not only a cheery children's movie, but a one filled with political themes, including capitalism, Marxism, and colonialism. Mary and Burt are Marxist figures who convincingly demonstrate that Marxism is preferable to the capitalism of early twentieth-century England. They use their Marxist ideology to show just how bad a capitalist system is for the bourgeois Banks, and the proletarian laborers.

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Eliot's Elements

Flame-Testing The Waste Land

by Christopher Wootten

Expounding on the theoretical applications of quantum mechanics, Roland Omnes teaches us, "The logical structure of the theory allows a great variety of consistent logics, which are usually foreign to each other. This complementarity cannot however generate a paradox nor a logical inconsistency" (507). While this observation refers to theoretical physics, its implications are carried out in systems of knowledge and meaning of all disciplines. *The Waste Land*, since its publication during the height of enthusiasm surrounding quantum mechanics, has spawned many varying but "consistent" logics that are mutually foreign. From the deconstructionist criticisms of Harold Bloom and Cleo Kearns to the structuralist interpretations of Bernard F. Dick and Eleanor Cook, many have tried to make sense of Eliot's "heap of broken images" (Eliot 22). All of these interpretations of *The Waste Land* follow earlier assessments of the text as portraying a fragmented West in decline. Despite strong critical support, Eliot denied this assessment early on. To this effect Eliot remarked:

> Various critics have done me the honour to interpret the poem in terms of criticism of the contemporary world, have considered it, indeed, as an important bit of social criticism. To me it was only the relief of a personal and wholly insignificant grouse against life. It is just a piece of rhythmical grumbling. (qtd. in Bloom 56)

While the relationship between the author and the text has been called into question of late by deconstructionist criticism, Eliot clearly makes a good assessment of *The Waste Land* in his denial of its importance. Eliot calls the poem a "grouse against life." Indeed, the significance of the poem lies in its fundamental constructs. It is about life and should first be understood on an elemental level. Hugh Kenner is the first to embrace this in his criticism of *The Waste Land*. Here, Kenner accidentally annotates something that yet remains absent from the body of Eliot criticism--science.

In his 1959 essay "The Death of Europe," Kenner writes, "All things deny nature . . . the very colour of the firelight perverted by sodium and copper salts" (10). In context, Kenner is explaining the unnatural limits the West has achieved in *The Waste Land*. While referencing Cleopatra's chamber, he accurately assesses the color of Cleopatra's firelight in terms of science. This science is not undifferentiated. To link specific natural

elements with the colors they give off when burned suggests atomic spectra, characteristic colors (frequencies) of light given off by a heated sample of an element--a flame test. As Kenner shows, Eliot does this in "A Game of Chess" in writing, "Huge sea-wood fed with copper / Burned green and orange" (94-95). Kenner identifies a fundamental observation of quantum mechanics in Eliot's text. This should not come as a total surprise; at the time of Eliot's writing, quantum mechanics was being formulated by Max Planck, Niels Bohr, Albert Einstein, and others. It was an area of research uniting some of the greatest minds in science. In short, quantum mechanics was in currency at the time of Eliot's writing. We know that a significant scientific influence on Eliot's writing was possible. Suddenly, Kenner's explicated fragment takes on a new significance in the given scientific context of the day.

Using "Huge sea-wood fed with copper / Burned green and orange" as a means of entering the text, similar configurations of wave and particle mechanics become apparent. Beyond its quantum implications, the highlighted passage also serves as a model of a different sort. Here, Eliot explores a single, primitive "element" of the natural world--fire--in terms of the quantum characteristics it indicates. In this instance, fire is used to express atomic spectra, which quantum theory explains. Looking closely at *The Waste Land*, several other "elements" receive similar treatment. This is to say, Eliot introduces his own set of primitive elements: fire, rock, air, water, and light, and then "tests" or evaluates these elements for their quantum physical characteristics. Thereby, Eliot's poem finally goes beyond the metaphoric in its dealings with quantum mechanics. Indeed, T. S. Eliot's, *The Waste Land* defines its component elements, evaluates them in terms of wave and particle (quanta) energies, and finally prefers the energetic particle over the energetic wave.

Looking first to the quantum mechanics that underlies Eliot's text, we should begin with a history. Quantum mechanics is the summation of many ideas pertaining to matter and energy, beginning with those of Max Planck around 1900. Planck formulated his revolutionary hypothesis after spending six years studying the thermal radiation of blackbodies--an ideal system that absorbs all radiation energy incident on it (Serway 1148-1149). While the technical aspects of his study are beyond the focus of this analysis, the results of his study are the basis for quantum physics as we know it today. Basically, Planck put heat energy into blackbodies. As all matter does, the bodies in turn radiate this energy in the form of waves. The particular behavior of these waves had been studied for centuries, continually baffling classical physics. Planck made a bold proposal that explained the waves' behavior quite accurately. He submitted that the molecules of the blackbody emitting radiation could only have discrete units of energy. This theory is important in our study of *The Waste Land*. Furthermore, Planck proposed that the molecules of all matter could only emit or absorb energy in discrete bundles, called quanta. Emitting or

absorbing these packets of energy changed the quantum state (energy state) of the molecule's electrons (Serway 1149).

Following Planck's initial proposal, many of the most famous scientists of our century put his theories to use. Einstein, Bohr, Schrodinger, Heisenberg, and others quickly used Planck's quantum hypothesis to elucidate the laws governing "the realm of the small" (Thorne 147). These names are mentioned to emphasize the widespread importance of quantum mechanics during the time Eliot was writing *The Waste Land*. Discoveries in relativity and quantum mechanics gave physics an unprecedented currency worldwide.

In addition to the preceding summary, a few pertinent experiments and substudies within quantum mechanics should be covered before we investigate Eliot's text. If they appear haphazardly given, it is largely due to the difficulty of extracting directly-pertinent and understandable models from such a large body of information as quantum mechanics. In brief, Planck's experiments with black-body radiation quantified energy on a microscale. In 1905, Einstein successfully uncovered the particle nature of the quanta.

Late in the 19th century, Hertz discovered that certain frequencies of light, when shined on a metal plate, generated an electrical current (indicating the ejection and movement of electrons). This so-called photoelectric effect, Einstein explained, was due to the particle nature of quanta. Electrons on the metal's surface, he proposed, were accepting particulate bundles of energy (quanta) and escaping the attraction of the positively-charged nuclei with which they were associated (Serway 1150-1152). These particulate bundles of energy (now called photons) are discrete. According to Einstein's photoelectric effect, light could now be described as both a wave and a particle. This claim, winning him the 1921 Nobel prize, put to rest centuries of debate about the nature of light. However, the wave/particle discovery opened up many newer avenues for discussion that are still being explored today.

Around the same time, a different kind of support for quantum theory came from Niels Bohr. He sought to explain spectral lines--discrete lines of color given off by gaseous samples of elements subject to electrical discharge (Serway 1157). Contrasting the continuous distribution spectrum we see in the white light that electrified tungsten emits in a light bulb, spectral lines are very distinct bands within the visible-light section of the electromagnetic spectrum. These are characteristics of the individual elements and often serve as a means to assay an unknown elemental sample. The unique spectral lines are based on the electron configurations of the element being assayed. Again, the electrons accept a photon and become excited causing them to jump into a higher quantum state. Because things in nature do not exist in high energy states for long, the electrons quickly fall back to lower-energy quantum states, thereby releasing quanta of specific frequencies as they do so (Serway 1157, 1159-1160). We perceive these emitted quanta as spectral lines. The sum-

mation of these spectral lines in nonstandard conditions gives elements their unique colors when subjected to a flame test. Generally, violet-colored light and its quanta are of the highest energy, followed by blue, green, yellow, orange, and finally red. Red is of the lowest energy. These brief explanations, though sporadic in terms of the quantum mechanics as a whole, should be sufficient background to read Eliot's *The Waste Land* in terms of the physics involved.

Having gained a broader understanding of quantum theory, we must now look at how Eliot's physics is explored in *The Waste Land*. "Huge sea-wood fed with copper / Burned green and orange" is a good place to start our analysis. Remembering Bohr's discoveries about the spectral lines of elements, Eliot flame-tests the sodium-and-copper-inundated wood to the same end. However, while Bohr was concerned with how heated elements indicated quanta, Eliot is concerned with the fire's ability to induce that quantum indication. Similarly, if Eliot chose to explore blackbodies, we might predict that Eliot would focus on the blackbodies as scientific indicators in their own right, even though Planck studied the electromagnetic emissions of blackbodies. *The Waste Land*, therefore, not only looks at the effects of quanta, but the quantifiers themselves. Indeed, the types of quantum characteristics we attribute have much to do with the experiments we perform.

Besides providing the flame-test image that introduces us to quantum mechanics in *The Waste Land*, the element of fire allows us to physically see these microscale interactions at work. We reencounter this notion later in analyzing Eliot's "The Death of a Saint Narcissus." Basically, we cannot see quantum mechanics until there is a net movement of energy. More specifically, we see quanta released when energy moves from a higher state to a lower one. From the vantage of energy movement, a good deal of Eliot criticism is supported. An early interpretation of *The Waste Land*, for example, will show a Europe in decline. To illustrate this, we see how Kenner assesses the following passage:

> At the violet hour, the evening hour that strives
> Homeward, and brings the sailor home from sea,
> The typist home at teatime, clears her breakfast, lights
> Her stove, and lays out food in tins. (Eliot 220-223)

Kenner views these lines as the "Syntax" Tiresias sees--a syntax that, "like his sensibility and her routine, undergoes total collapse" (21). As indicated by the collapse, energy is striving towards a minimum in the West. While this passage from Eliot's text does not directly deal with fire, it does represent a visible quantum indication that has been explored in criticism. What the criticism is missing, though, is the consequences of energy exchange. Energy does not simply dissipate in *The Waste Land* any more than it does in our own larger universe.

No element deals with decreasing energy in *The Waste Land* more poignantly than Eliot's rock. The "red rock" (Eliot 25) we first encounter in the poem depicts the unenergetic foundation upon

which Eliot's waste land is constructed. This notion continues into subsequent passages about rock and finally assesses the waste land as a place lacking in energy from the ground up. Illustrating this, the color red indicates visible quanta of the least energy in quantum theory's spectrum. Specifying "this red rock" becomes significant. At a glance, the rock must be in a low energy state. However, this passage allows a second read if quantum mechanics is extended further. When the Doppler effect evaluates an energy-radiating body moving away from the observer, we witness a redshift. Therefore, the rock could be understood on one level as possessing little energy. On another level, though, the rock could simply be moving away. In short, we see two ways in which Eliot evaluates or tests an element of *The Waste Land* for its quantum characteristics. These are important distinctions. In the passage, the narrator reports:

> Son of man,
> You cannot say, or guess, for you know only
> A heap of broken images, where the sun beats,
> And the dead tree gives no shelter, the cricket no relief,
> And the dry stone no sound of water. Only
> There is shadow under this red rock,
> (Come in under the shadow of this red rock). (Eliot 20-26)

Eliot introduces his own set of primitive elements: fire, rock, air, water, and light.

Thus, in an early description of the waste land, we see the rock's importance. It is the last vestige of relief. To say that the rock is of low energy is to then say that the textual surroundings are of phenomenally low energy. They are beyond releasing visible quanta. Alternatively, to say that the rock is fleeting is to place the narrator in a vacuous position. The body, whose *shadow* brings relief to the entropic waste land around it, is expanding away from the observer--a pessimistic echo of our own universe.

The "red rock" segment finds its source in an earlier Eliot poem, "The Death of a Saint Narcissus." The poem opens with:

> Come under the shadow of this grey rock
> Come in under the shadow of this grey rock
> And I will show you a shadow different from either
> Your shadow sprawling over the sand at daybreak, or
> Your shadow leaping behind the fire against the red rock: I will show you his bloody cloth and limbs
> And the grey shadow on his lips. (Eliot 1-7)

Here, the red rock starts out grey--possessing too little energy to be seen in quanta. Without motivation, the rock will remain in this state. This is a restatement of the second law of thermodynamics. It is through the heat energy of the fire that

the rock becomes energized enough to radiate red quanta. Thus we see Eliot's elements interacting as their analogs would in our own world. Contrasting this, the Saint's lips were red in time past. However, when the "human engine" (Eliot 216) given in *The Waste Land* ceases to run within the Saint, the Saint died. His energy escaped, and the once-red lips became grey like the rock at the start of the poem. In these interactions, quantum mechanics is supported in *The Waste Land* and its source texts.

A good summation of this source poem is given in Wendy Steiner's "Collage or Miracle: Historicism in a Deconstructed World." Here she writes, "The saint ends up a corpse holding his own dark shadow in his mouth" (Steiner 326). From the quantum perspective, though, we must note the physical implications. While Saints find relief "under the shadow of this red rock," there is no relief in the dead Saint's shadow. Unlike the red rock, he can radiate no more. His energy is beyond visible quanta. In an image Eliot will use in writing about water in the waste land, the poet closes "The Death of a Saint Narcissus" with a dead man beneath a more-energetic form-- the red rock. Furthermore, the image of the shadow "in his mouth" (326), instead of words, reinforces his silence.

Like the "red rock" passage that precedes it, the second major occurrence of rock, in "What the Thunder Said," also depicts energy in decline. Feeling this, we find, "He who was living is now dead / We who were living are now dying" (328-329). Now, however, energy is more rare. The rocks have no color, like the lips of Saint Narcissus. We can presume the quanta they radiate are less-energetic than can be perceived. Furthermore, they are unable to relieve like the red rock. The only color imagery mentioned suggests that the human inhabitants of this waste land are finally degenerating like the primitive elements before them. Indeed, "There is not even solitude in the mountains / But red sullen faces sneer and snarl / From doors of mudcracked houses" (343-344). How long before the "red sullen faces" cease to glow altogether?

Shifting focus now from earth to sky, we see Eliot's optimism enter the text. While the rocks seem to be fruitlessly losing energy, the air of *The Waste Land* is potent and effecting change. In 1930, Eliot published *The Waste Land and Other Poems*. Preceding *The Waste Land* in sequence, "Preludes" owns up to its title as the poem depicts *The Waste Land*'s "broken tent" passage (Eliot 36) in different detail. In "Preludes" he writes:

> The winter evening settles down
> With smell of steaks in passage ways.
> Six o'clock.
> The burnt-out ends of smoky days.
> And now a gusty shower wraps
> The grimy scraps
> Of withered leaves about your feet
> And newspapers from vacant lots... (Eliot 1-8)

This passage seems to lend further significance to *The Waste Land*'s departed nymphs (Eliot 179) and the "brown fog of a winter noon" (208) with its personal tone. However, these dismal passages are contrasted by "the violet air" (373), in

which "Jerusalem Athens Alexandria / Vienna London / Unreal" (375-377) "crack and reform"(373). The air is "violet," indicating the highest energy we can visualize. Therefore, a quantum physics reading of *The Waste Land* introduces an element of hope. Criticism assesses Eliot's hope in *The Waste Land* as neo-Christian (Barfoot 253). Looking to the "Journey of the Magi," also published with *The Waste Land*, as a source of metaphor, Eliot speaks of "another death" (43). The segment lends strong support to such a read. Considering this, the reformation of the great cities "in the violet air" is significant in the neo-Christian assessment. Like "another death" the Magi speak of, "Jerusalem Athens Alexandria / Vienna London " are being destroyed and reborn in *The Waste Land*. In the high-energy air, the Western waste land is finally changing. Furthermore, this change appears to evolve from the ether--indicating a measure of faith. Indeed, the ether's energy does not simply dissipate. It is transferred and transforming.

So far, *The Waste Land* has generated both optimistic and pessimistic interpretations through its elemental configurations of quantum theory. However, Eliot's elements have yet to acknowledge their own paradox. As Einstein finally resolved, the electromagnetic spectrum is both wave and particle in nature. The poem's descriptions of fire, rock, and air all suggest that quantum mechanics has an essential presence within *The Waste Land*. These descriptions have only shown quanta to be present, though, and we understand that any indication of quanta must be accompanied by an indication of waves. Therefore, the poem has been only partially successful in conveying the essence of the quantum mechanics at work. *The Waste Land* finally "accounts" for this in its presentation of water and light/time. These two elements are given in terms of both waves and particles, comparing and contrasting the two forms in their associated imagery. Finally, through associated images, particle configurations of energy are preferred in *The Waste Land* over wave configurations.

The wave/particle duality is first addressed in Eliot's depiction's of water. After involved descriptions on both sides, water's wave characteristics are ultimately understood as negative ones, while its particle characteristics are given as positives. Generally, water in *The Waste Land* has three major associations: life, death, and silence. Looking first at the life qualities of water, we see water neatly quantified in rain. After the arid lines that open "What the Thunder Said," we get, "Ganga was sunken, and the limp leaves / Waited for rain, while the black clouds / Gathered far distant, over Himavant" (Eliot 396-398). Contrasting the color imagery previously encountered, the apparent quantum characteristic of water is the tangible rain-drop. This is how its energy is transferred. It is from this seemingly obscure point that the greater wave/particle debate is fully revealed as an interpretive presence in the poem. The life-giving power of water is brought forth in the imagery of these drops. In this way, particles of water are triumphant over waves.

From the "Dead mountain mouth of carious teeth that cannot spit" (Eliot 339),

the narrator laments:

> If there were the sound of water only
> Not the cicada
> And dry grass singing
> But the sound of water over a rock
> Where the hermit-thrush sings in the pine trees
> Drip drop drip drop drop drop drop
> But there is no water. (Eliot 351-359)

Until line 358 ("Drip drop..."), the passage focuses on the sound of water as bringing relief. Here we find a relationship, sound and the elements, that will be important in Eliot's analysis of light as well. Pertinent to our quantum reading, sound propagates as a wave. Sound is only a wave. In this respect, sound waves are like waves of water. There is no duality involved in either one. To say, then, that the "sound of water" could bring relief is to say that a wave could bring relief, that a wave could satisfy. However, the passage does not terminate until the "sound of water" is onomatopoetically morphed into the quanta of drip and drop. Like the drops of rain the "limp leaves" (396) are "wait[ing] for" (397), water's quantum characteristic is all that can satisfy the noisy, thunderous mountains. Hence, we see a wave/particle duality addressed where the configured victor is the quanta.

Interesting reinforcement to our understanding of Eliot's quantized water comes from an observation made by the physicist John Wheeler. Wheeler hypothesized that "the 'entirety of existence' is built on quantum phenomena that have been brought into existence by the act of registration, rather than on particles or fields of force" (Campbell 28). Wheeler illustrates this hypothesis with an experience from a dinner party attended by many prominent physicists of the early twentieth century. After dinner, the group played twenty questions. In this game, each player in turn was sent out of the room while the others came up with a word. The player would then be allowed to enter the room and ask questions about the word, eventually making an educated guess. When Wheeler's turn came, the physicist was shut out of the room for an unusually long time. Finally, he was asked to come in. Wheeler began asking the usual questions. Campbell tells it, "As he proceeded, he found the answers slower and slower in coming. Finally, he proposed a specific word. 'Is it a cloud?' After a long pause the reply was, "Yes." And everyone burst out laughing" (28).

As it turns out, while Wheeler was out of the room, everyone agreed not to think of a word at all. Instead, each one answered "Yes" or "No" by whim alone. The one condition was that Wheeler, if pressed to do so, should be able to produce a word compatible with all the answers already given (Campbell 28). From this experience, Wheeler made several conclusions about the active role of the observer in physics. Wheeler writes:

> The world, we once believed, exists out there, independent of any act of observation. The electron in the atom we once considered to have at each moment a definite position and a definite momen-

> tum. I, entering the room, thought the room contained a definite word. In actuality, the word was developed step by step through the questions I raised, as the information about the electron is brought into being by the experiment that the observer chooses to make. (Campbell 29)

In the same way Wheeler assesses the word or the electron, the quantum characteristic of water is an actively derived quality in *The Waste Land.* The first sign of relief in the poem is given in the "shadow under this red rock." By the time we arrive at "What the Thunder Said," the rocks no longer offer relief. Instead, the observer-persona is honing-in on alternative relief among the rocks. Reviewing the passage again, the progression follows:

> If there were rock
> And also water
> And water
> A spring
> A pool among the rock
> If there were the sound of water only (348-353).

The observer first selects water for relief, followed by the selection of a source. The observer then desires the sound of water. The passage finally ends with the new name for relief in *The Waste Land*, "But the sound of water over a rock...Drip drop drip drop drop drop" (356, 358). "Drip" gives way to "drop." "Drop" is relief. Like a quantized description of an electron, water is described in an interaction between the observer and the observed. The characteristics it bears are as much a product of the observer's honing as they are products of the matter itself.

Both Wheeler's interpretation and our own quantum analysis ultimately assesses water as quantized preferentially over wave expressions in *The Waste Land.* Having noted this, the second association of water, its association with death, obviously works towards the same end. As the subtitle indicates, "Death by Water" is a veritable motif in *The Waste Land.* Within this fourth part of the poem, Eliot presents an image of the dead sailor, Phlebas the Phoenician. Here, "As he rose and fell" (Eliot 315), that is to say, as he moved as a function of the sea waves, "A current under sea / Picked his bones in whispers" (314-315). Again, we see Eliot's conspicuous use of wave imagery in a life-inhibiting sense.

> As indicated by the collapse, energy is striving towards a minimum in the West.

Furthering this, before Pound's reductions, *The Waste Land* included several poems to be placed between sections. Not surprisingly, one of these was dedicated to death by water. Consequently, as *The Waste Land* manuscript expert Richard Ellmann would agree, the insert poem is neatly linked to Phlebas the Phoenician in two ways. They are both concerned about death by water, and they are both concerned with religious positioning. The

two themes are intertwined in the original "Death by Water" insert. Where the vestigial *The Waste Land* remarks "Gentile of Jew" (Eliot, Valerie 319), Eliot's original manuscript includes "a renewed thrust as poor Bleistein, drowned now but still haplessly Jewish and luxurious underwater" (Ellmann 58). Eliot writes, "Full fathom five your Bleistein lies / Under the flatfish and the squids" (Eliot 1-2), and later, "Roll him gently side to side / See the lips unfold unfold / From the teeth, gold in gold" (Eliot 13-15). Echoing the final copy of "Death by Water," water has brought death, and its waves are silently acting upon the dead.

While water's association with death is a convincing argument against wave mechanics, Eliot further associates water with silence to reinforce the point. Both the Phlebas the Phoenician and the edited Bleistein sections contain alternative references to silence. Remember, as Phlebas is undulating with the sea waves, "A current under sea / Picked his bones in whispers." We have already noted the similarities between sound waves and sea waves--neither possess a second form of propagation. They are both merely waves. Therefore, attributing silence and death to waves could simply be a morbid metaphor. Analyzing on another level though, the correlation of water and sound seems to be cyclical and meaningless in terms of quantum theory. No matter how it is phrased, writing about one wave in terms of the presence, or, in this case, the absence of another wave is of little use to our argument. However, the waves are not silent on their own. It is the dead body, silently being rocked about beneath the waves that defines their silence to the reader, as readers of *The Waste Land* displace themselves more readily onto the character of the dead human than onto the animated sea. Indeed, Eliot himself was troubled by his associations with the dead and dismembered of the poem on numerous occasions (Jay 123). We see, then, that it is the silence of Phlebas that makes the actions of the sea so solitary. In this respect, Bleistein illustrates the importance of man even better. The final lines of Bleistein's poem recount, "See the lips unfold unfold / From the teeth, gold in gold" (Eliot, Valerie 7-8). Here, Eliot is so displaced onto the dead that he directs the reader to anticipate sounds from the mouth. Instead of sound, however, we only see the golden smile (8). Indeed, it is the dead human, beneath the viscera of the living sea, that is the silent heart.

In explicating silence and water, a final quantum characteristic of water, one that is common to light as well, is discovered. As alluded to earlier, there is a sense of the superficial and the internal surrounding Eliot's descriptions of water. On the surface (literally), the bodies portray waves as agents of human death. The dead, silent beneath the waves, are the quanta--the discrete units of energy. In this case, they are discrete units of zero energy, as the dead men are in equilibrium with the non-living waves around them. Light also has an internal and an external sector in *The Waste Land*. Early in the poem, the narrator remembers:

> I could not
> Speak, and my eyes failed, I was
> neither

> Living nor dead, and I knew nothing,
> Looking into the heart of light, the silence.
> *Oed' und leer das Meer.* (Eliot 38-42)

As with the sea-waves that have found silence through their internalized quanta, the "heart of light" is silent as well. Here Eliot returns to the difference between sound waves and the waves of the electromagnetic spectrum. Electromagnetic waves are both waves and particles in nature. Sound waves, as we have learned, are not. They are only waves. In saying that the heart of light is silent, then, Eliot's persona is lamenting a world before quantum mechanics. Now the conventional waves are silenced. The validation of quanta in the scientific discoveries contemporary to *The Waste Land* has silenced them. Once again, therefore, we find Eliot's text addressing the wave/particle duality only to give precedence to the particle in the end.

"Looking into the heart of light, the silence" is only an introduction to light in *The Waste Land.* Light serves a very important role in confirming quantum mechanics as an interpretive tool for Eliot's text as it further grounds the poem in the physics of quantified energy exchange. Light in *The Waste Land* is represented by the sun. A powerful image for this relationship is given in "The Burial of the Dead." The narrator claims, "And I will show you something different from either / Your shadow at morning striding behind you / Or your shadow at evening rising to meet you" (Eliot 27-29). Clearly, denominations of time (morning/evening) and denominations of light (shadow) are intertwined in the differing position of the shadow over the course of the day. Throughout the text, light and the sun are synonymous. The sun's energy is the light energy of the poem, and the variation of this energy with time sets up a powerful gradient that drives many of the human interactions and reactions in *The Waste Land.*

With this relationship established, the "violet hour" passage in "The Fire Sermon" takes on new meaning. The phrase "at the violet hour" reinforces the linkage of time and a color of visible light through light's presence in the sun. However, this is merely a superficial observation. The real predictive power of quantum mechanics in *The Waste Land* comes from equating the sun's presence with the energy of the poem's action. Criticism is in agreement about that which follows the "violet hour." The passage begins with:

> At the violet hour, when the eyes and back
> Turn upward from the desk, when the human engine waits
> Like a taxi throbbing waiting. (Eliot 215-217)

Soon, however, this energetic anxiety fades. Indeed, most see the subsequent coupling of "the typist" (222) and the "small house agent's clerk" (232) as passionless. One of *The Waste Land*'s many voices, the mythological prophet, Tiresias, perceives:

> The time is now propitious, as he guesses,
> The meal is ended, she is bored and tired,
> Endeavours to engage her in

caresses
Which still are unreproved, if undesired. (235-238)

Looking at the violet hour in terms of quantum mechanics, the text becomes a sensible energy flow. Again reviewing the science, violet's quanta are of the highest energy in terms of the visible spectrum. Comparing the quantum mechanical implications of the sun's violet light with established critical interpretations of the same passage, sex without passion could easily follow the violet light simply because energy, unchecked, flows downhill. In such a way, the reader may arrive at the same conclusions about the energy of this passage using very different interpretive tools. Furthermore, the generator of time/light in *The Waste Land*, the sun, is setting throughout the "violet hour" section--remember, "Her drying combinations touched by the sun's last / rays" (225). With the violet energy leaving the system and the sun setting along-side it, passion would be expected to decrease, as indeed it does.

Explaining what occurs after the violet hour in terms of light energy allows us to perceive, in a Tiresian sense, the outcome of Albert's return to Lil (Eliot 166). Throughout the preceding lines, Lil and the narrator are engaged in a dialogue about sexually gratifying Albert when he returns from the war. The passage culminates in the lines:

Well, that Sunday Albert was
home, they had a hot gammon,
And they asked me in to dinner,
to get the beauty of it hot--.
(166-167)

While the gammon is hot here, its heat energy must flow downhill. "A Game of Chess" ominously closes with a string of "goodnight[s]." Knowing the nature of things, not much can be expected from a cold gammon after dark. Thus, we can predict the unwritten passion that closes "A Game of Chess" to be similar to the passion of the coupling in "The Fire Sermon." The two are nil.

Continuing our comparison of the typist's experience with Lil's, we come to understand other similarities between the two. The poem, "mixing memory and desire" (Eliot 3) in a dynamic equilibrium brings memory to the forefront as desire after the passionless sex fades. This is realized in the text following the coupling of the typist and the young man. In the aftermath, the woman "puts a record on the gramophone" (256) and recounts her life along the Thames (257-310). Memory follows extinguished desire. Now we can fully appreciate the sequence of the poem following "A Game of Chess." Earlier, we used quantum mechanics to predict a low level of energy in store for the intercourse between Albert and Lil. Textually, in the aftermath of this comes the opening to "The Fire Sermon"--the memories of "Silk handkerchiefs, cardboard boxes, cigarette ends / Or other testimony of summer nights" (178-179). Memory follows desire.

Besides the similarities we have already noted between the two couplings in *The Waste Land*, these passages are also similar in their contributions to a quantum mechanics read as well. The remembrances that follows both passages have quantum implications in their treatment of declining energy within the system.

Basically, quantum theory accounts for remembrance after the progression from the "violet hour" or the "hot gammon" into nightfall in its explanation of the redshift phenomenon. When the technical garb is cleared away, Eliot's use of redshift is well supported.

We observe a redshift in nature when we identify an electromagnetically radiant object moving in a direction opposite our own movement. If the object were emitting energy in the form of visible light, we would notice, instead of white light, a light composed of mostly low-energy colors. Because red represents the lowest energy of these colors, we call the phenomenon a redshift. It is not the true light we are seeing--the light we would observe if we were traveling along-side the radiant object. Instead, we are seeing a sort of quantum memory of the true light. Two observations can be made about this memory. First, the shifted light is of less energy, and therefore a different color. Second, the degree by which the emitted light is shifted is proportional to both the speed at which the observer and object are moving apart and to the original energy of the emitting body.

The confines and variables involved in human memory are surprisingly similar. The redshift mechanism is employed by the typist and Lil in *The Waste Land* as they reflect upon the passionless sex, and the energy that preceded it. Here the last vestiges of an energetic event can be seen, fleeting and distorted. The two women reflect upon the past events in a false "light" that is proportional to the events' original energetic meaning. They can attempt to reconstruct their experiences, but success is impossible because the quantized data they are given is constantly shifted further from the truth. The womens' recollections give us excellent metaphors that illustrate the shift and the impossibility of reconstruction. After the event, the typist "puts a record on the gramophone" (256). Her music is only a recording. The music is no longer live. Similarly, Lil finds cigarette ends--burned-out ghosts. Beyond the redshift, quanta no longer have enough energy to be perceived visually; hence, the poem follows with Phlebas dead and equilibrated with the waves.

> In the high-energy air, the Western waste land is finally changing.

While interpreting sexual intercourse in *The Waste Land* in terms of the redshift may seem strained, consider a philosophical vantage. Clearly, the two womens' perspectives mutually support the redshift as a memory mechanism. In Roland Omnes' *The Interpretation of Quantum Mechanics*, a section at the end of the book is dedicated to philosophical implications of quantum physics. Among these, Omnes asserts, "Contrary to dynamics, the logical structure of quantum mechanics must select a definite direction of time, which necessarily coincides with the one occurring in thermodynamics" (507). Summarized, the progression of energy over time will coincide with the processes of thermodynamics over that

same time period. As energy decreases, quantum mechanics sees true colors radiated, followed by red-shifted ones, followed by no color at all. Eliot's physics works the same way. Thus, the setting of the sun and the cooling of the gammon will coincide with the all the related phenomenon of quantum mechanics. Because it seems so well ingrained in the text, the redshift is even interpretable as an objective correlative for memory.

Having now evaluated Eliot's elements of *The Waste Land* in quantum terms, a final look at its critical implications is in order. Numerous occasions have arisen where a quantum read on *The Waste Land* supports established criticisms through a radical approach. As an example, the final explanation of sex without passion certainly agrees with the established explications. For emphasis, we could again consult Kenner's early essay. About the coupling of the typist and the clerk, Kenner writes, "there is neither doing nor suffering here but rather the mutual compliance of a ritual scene" (20). Here, our scientific read agrees with the non-scientific. On other issues, the quantum read may differ. However, we have yet to differentiate (if that is possible) between a quantum theory analysis of *The Waste Land* and the larger designation of structuralist reads. It seems that *The Waste Land* does actually supply its own elements, and these elements exchange energy and react through the currency of quantum mechanics. Therefore, to read *The Waste Land* in terms of quantum theory is, finally, unearthing the physical nature of the text. This is in opposition to imposing machinery by which the poem can be interpreted. Either understanding, structuralist or not, may reduce to Eastern versus Western ideas of structure's definition--an idea well supported in the poem's close.

While structuralist concerns are important critical designations for *The Waste Land*, any interpretation must contend with the destabilizing contradictions within the text. Reading *The Waste Land* in terms of quantum mechanics is no exception. This is primarily seen in Eliot's treatment of *The Waste Land*'s human inhabitants. Elementally, *The Waste Land* proves to consciously express itself in quantum mechanics and its energy relationships. While Eliot's treatment of the waste land's human inhabitants does not necessarily suggest that we are no greater than the elements that make us up, people are given quantum characteristics as well. We have already discovered one instance where the "red sullen faces" (Eliot 344) seem to shine dimly in their unenergetic rocky environment. However, two voices of the thunder, *Datta* and *Dayadhvam* offer different, more pronounced indications of humans quantized. Towards the poem's close, the voices describe two opposing aspects of humans' quanta. The first alternative, *Datta* asserts:

> The awful daring of a moment's surrender
> Which an age of prudence can never retract
> By this, and this only, we have existed
> Which is not to be found in our obituaries. (404-407)

Basically, *Datta* suggests that we (people)

are that which cannot be quantified. Our true being is not given in the currency of quantum mechanics. In sharp contrast, *Dayadhvam* follows with:

> I have heard the key
> Turn in the door once and turn once only
> We think of the key, each in his prison
> Thinking of the key, each confirms a prison. (412-415)

This second voice asserts that mankind imprisons itself in the "panoptic gaze" mindset. More generally, *Dayadhvam* suggests that we are self-quantizing.

Clearly the voices of *Datta* and *Dayadhvam*, in their contrasts, destabilize the text's final message to humanity. This problem is not unique to a quantum read. Nor is the dynamic equilibrium between encapsulation and liberation. The problem is, for most reads, finally worked out through the possibility of remembrance and dreams. Eliot gives us this much at *Dayadhvam*'s close in writing, "Only at nightfall, aethereal rumours / Revive for a moment a broken Coriolanus" (Eliot 416-417). Quantum mechanics, however, offers additional insight. Remembering Wheeler's hypothesis about the subjectivity of quantum mechanics, there is an interaction between observer and the observed in physics. Bohr was actually the first to articulate this in saying that the observer is both player and spectator (Campbell 28). Therefore, beyond the wave particle duality of matter, there is a meta-duality in quantum mechanics in the role of the observer. This is apparent in the statements of *Datta* and *Dayadhvam*. *Datta*'s assertion that humans are not quantizable is to privilege us as perfect spectators of a quantized system. In contrast, *Dayadhvam*'s assertion that we in fact quantize ourselves is to assess humans as players in that same system.

Finally, reading *The Waste Land* in terms of quantum mechanics has its limitations. While the interpretation identifies quanta in Eliot's closing portrayal of humanity, it cannot make predictions about which scenario will dominate--man's encapsulation or its liberation. Quantum mechanics renders this distinction an unresolvable duality. However, any limitations a quantum read of *The Waste Land* might suffer are certainly outweighed by its applications and accuracy. Clearly, Eliot defines the elements of his poem and grounds these elements in the same physical determinacy as the reader. That is, the physics at work in *The Waste Land* is the same physics at work in our own universe. Thus, a quantum interpretation of the poem gives the reader the leverage of numerous auxiliary texts. Furthermore, Eliot gives the reader additional leverage by simplifying the quantum mechanics he uses. First, Eliot treats quantum expressions preferentially over wave expressions. Thereby, we are able to construct less-complex models of prediction. Second, Eliot effectively applies quantum mechanics to other essences besides microscopic ones. In applying quantum mechanics to the very large (rocks) and the very small (sodium and copper atoms) alike, Eliot may even be working towards that which we have yet been unable to do, that is, formulate a "quantum theory of gravity" (Hawking 51).

As indicated, there is a real interaction between Eliot's text and quantum mechanics. In this explication, we have identified many such instances with the knowledge that these are only a fragment of the quantum physics of the poem. Uniquely, quantum mechanics allows fragments to be both incomplete and holistic truths simultaneously. Germane to the philosophical perspective given earlier in this study, Omnes asserts, "perception is a special case of measurement" (509). Other measurements will invariably yield perceptions that are logically grounded and mutually foreign. Through the summation of other measurements, though, we are building a more complete understanding of the quantum characteristics of a system. Different characteristics are elucidated with every different experiment conducted. This is true for our approach to *The Waste Land*. The poem is a true participant in and a product of quantum mechanics. Our conclusions indicate this. However, as Hans Primas notes, quantum mechanics will never supply a holistic knowledge of a system. To this effect he summarizes quantum mechanics in the Einstein-Podolsky-Rosen paradox in saying, "the whole is more than the sum of its parts" (Weininger 45). Thus, *The Waste Land* resists a totalized understanding through quantum mechanics's own uncertainties. This leaves the reader to know, as promised, "only a heap of broken images" (Eliot 22). In offering an individual or collaborative interpretation, we are taken-in by the text.

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A pre-med English major from Columbus, Mississippi, Chris Wooten intends to pursue a career as a physician (perhaps endocrinology). In addition to this, his aspirations/intentions include exploring the Nordic islands of the north Atlantic and Baltic Sea, learning to play the Highland pipes, being absolutely alive, and other things.

Shelby E. Southard Lecture Series

School Prayer and the Ten Commandments in Alabama

by Roger K. Newman

Roger K. Newman, Research Scholar at New York University School of Law, is the award-winning biographer of Hugo Black and a Pulitzer Prize finalist. He delivered this speech as the first Shelby E. Southard Lecturer at Birmingham-Southern College on February 6, 1997. The Shelby E. Southard Lecture Series was founded with an endowment from the estate of Shelby Southard, a 1937 graduate of Birmingham-Southern College. The Lecture Series is designed to examine civil liberties of American citizens, and how they can be protected, defended, and strengthened.

It is an honor and a privilege to deliver the inaugural Shelby E. Southard Lecture. He was a public-spirited citizen who valued words and their significance from his youth when he published scores of articles and his early days as a Southern correspondent for *Time* magazine, continuing through his years as editor of *The Methodist Layman* and culminating with his numerous, and often pioneering, efforts in the co-operative and consumer movements. As part of his estate he established this lecture series in order to protect, defend and strengthen the civil liberties of American citizens. Few subjects are so priceless or retain such timeless importance and it is about an aspect of them that I wish to speak.

The formation of the American republic created a new epoch in history. The consequences were so radical they require an abiding commitment to hardiness. The role of the citizen and his relationship to the state were reformulated. Few things were more novel than the Bill of Rights. The Framers, steeped in history as they were, knew the dangers when ecclesiastical rulers try to control people's minds. They designed a document which enabled the government to function in its sphere yet gave the true rulers, the people, sovereignty over their own beliefs. The Bill of Rights remains the lodestar of American liberty.

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." So begins the First Amendment, even before it protects freedom of speech and press. Like so much else in the Constitution, the language of the religion clauses gives rise to difficulty in practice. But, more so than most other provisions, it has largely assured its primary goal -- separation of

church and state in a religiously pluralistic nation. If the First Amendment's command that "'no law' means 'no law,'" as Justice Hugo Black liked to say, what, then, does "establishment of religion" mean?

History provides some of the answer. For law without history, like Humpty Dumpty, keeps on falling down only to get up again. History is often tantalizing, but it speaks to us with more authority in the case of the First Amendment's religion clauses than it does with most other provisions of the Bill of Rights. On the eve of the American Revolution most colonies maintained establishments of religion. But the Constitution changed that. The fact is that the Framers did not give Congress the power to act in the field of religion, and no state supported that power either.

One of Thomas Jefferson's early achievements was to wipe from Virginia's books the colonial law under which anyone who stayed away from church for one month was imprisoned until that person conformed. Jefferson and his great friend and collaborator James Madison were both religious men. By religious I do not mean in the church-going sense, but that religious concerns animated them. Both drew on Roger Williams. The roots of religious liberty in America, and one of its most enduring images as well, can be traced to Williams. He spoke of "a gap in the hedge or wall of separation between the garden of the church and the wilderness of the world." Jefferson's secularism was more anticlerical than atheistic, and varied between theism and deism. And Madison came close to taking the cloth in his youth. Yet that did not prevent him from introducing and guiding the Bill of Rights to passage.

We need not be slavish adherents to the specific thoughts of Jefferson and Madison. Revere them for their contributions, yes; engage in ancestor worship, no. They are prime sources for our covenant with the future and help guide us to go our own independent ways. That is the point of their teaching.

The two most important religious cases decided by the Supreme Court both drew on that teaching. Justice Black wrote both opinions -- a 1947 religious school bus case and the 1962 school prayer case. A more formally irreligious man would have been hard to find. He knew the Bible well since his childhood in Clay County and for fifteen years starting in the early 'teens of this century taught a large Sunday school class at the old First Baptist Church in downtown Birmingham. But gradually he drifted away from organized religion. "I can't exactly believe and I can't exactly not believe," he liked to say. No one who ever heard him, about this or anything else, could doubt his sincerity. But his belief in man's unending struggle against the perversities of his own nature, which only one's will could overcome, strongly resembled modern Christian realism. The Justice was a God-intoxicated man imbued with Protestantism's individualistic character, and he viewed his main task as a Supreme Court justice as protecting the people's impulses from state compulsion in any form.

In 1947 Black upheld a local New Jersey law that authorized reimbursement of money spent by parents for sending their children to religious school on public buses. The essence of his opinion was that prohibiting repayment would have deprived a benefit extended for the safety

and convenience of all children regardless of religion. The law's objective was secular and therefore did not fall under the kind of "aid" forbidden under the "wall of separation between church and state" doctrine the decision established. Of equal importance, the Court held that the First Amendment's prohibition against an establishment of religion applied to the states. Black typically left the dissenters little room in which to maneuver. "They'll see it was a Pyrrhic victory," he said at the time.

In the late 1950's five parents of children attending a New Hyde Park, New York public school had charged that a state-composed prayer recited at the start of each school day violated the Establishment Clause. The prayer was: "Almighty God, we acknowledge our dependence upon Thee, and we beg Thy blessings upon us, our parents, our teachers and our Country." The case reached the Supreme Court in the spring of 1962.

Justice Black worked himself up before the conference at which the justices decided the case. For to him it went to the whole purpose of why we fought a revolution and have a written constitution protecting our rights. The prayer patently violated the First Amendment, he told his colleagues. All seven other justices sitting agreed, except for Potter Stewart who passed and was eventually the only dissenter. Black was assigned to write the Court's opinion.

First, he read dozens of books and articles on religious history. "People had been tortured, their ears lopped off, and sometimes their tongues cut or their eyes gouged out, all in the name of religion," he said before putting a word on paper. He aimed to lessen the inevitable controversy he knew would ensue. And the judge whom a colleague called "the craftiest man ever to sit on this Court" went about it in a most unusual way. In his last draft he eliminated all references to legal precedents. The opinion became solely an essay on church-state history. Those who disagreed were left no openings, no loopholes. They could object only to his history.

There can be "no doubt," Justice Black wrote, "that [the] daily invocation of God's blessings ... is a religious activity. ... It is no part of the business of government to compose official prayers for any group of the American people to recite as a part of a religious program carried on by the government." Religion, he concluded in the American tradition, "is too personal, too sacred, too holy to permit its 'unhallowed perversion' by a civil magistrate." From the bench he added extemporaneously and with emotion in his voice, "The prayer of each man from his soul must be his and his alone."

He barely returned to his chambers than the phone started ringing without a stop and he received more than one thousand letters, and the Court more than five thousand, about the opinion -- this in the days before interest groups started generating them by the tens of thousands. Few of the correspondents, and surely a low percentage of those who criticize the opinion, have actually read it.

That summer, Justice Tom Clark, an active Presbyterian layman, departed from tradition to defend the Court. The Constitution, he noted, provides "that both state and federal governments shall take no part respecting the establishment of religion or prohibiting the free exercise thereof. 'No' Means 'No.' That was all

the Court decided." Upon reading this, Justice Black, constitutional literalist that he so often was, had to chuckle.

In these two decisions the Court made Jefferson's metaphor of the "wall of separation between church and state" into a principle of constitutional law. Then Justice Black privately, very privately, admitted that he now believed he had been wrong in the school bus case, the very foundation of our church-state law. For Hugo Black to admit that he was wrong: why this was a man who sometimes went to the house saying, "I'm always right, I'm always right." You might as well have an advocate of creation science admitting that the theory of evolution was valid after all.

Black told his misgivings in 1966 to James McCollum. In a 1948 case McCollum's mother had brought on his behalf, Black wrote the Court's opinion, striking down a local Illinois measure releasing public school students from classes to attend religious instruction in *public* classrooms. And now he said that he thought that the idea that government aid goes not to the religious schools but to the children attending them, what came to be called the child benefit theory, went too far. He regretted his vote in the school bus case. Public money, he now believed, should not be used to transport students to parochial schools.

What made Black change his mind I do not know. Perhaps it was in response to the vehement and acrimonious public reaction to the school prayer case, a realization that in this area particularly sharp lines are especially needed. Perhaps Justice William O. Douglas' opinions in both the school prayer and Bible reading cases troubled and disconcerted Black. I wish I knew. And to whom he told it makes it even more poignant. But acknowledgment of error would throw this area of law into turmoil, especially at a time when it was heading so strongly in the direction Black wished, and he would not do it.

Jefferson's metaphor of the "wall of separation between church and state," as I noted, had become a legal principle. I almost hear you asking, what is a metaphor? Before you say that it is a bad pun -- sorry but I couldn't resist -- I will say that a metaphor is for symbolism. And few were ever better at that than Jefferson. Two years ago the Supreme Court upheld the right of a university to subsidize student-run religious publications just as it underwrites other student publications. Ironically, the university is the University of Virginia, which Jefferson founded. This case well illustrates that First Amendment clashes are basically cultural clashes. But a knowledge of history, a respect for diversity, having known and seen people who feel that because they have seen the divine light government should make others see it too -- all are, or should be, continually on the consciences of every judge, and every public official, in a democracy.

The First Amendment's mission is to free the minds and spirit of individuals from governmental intrusion. Yes, the First Congress opened each day's session with a Christian prayer invoking God, and Congress still does. Invocations of Divine blessing and other religious references have always regularly run through familiar government activities. Our coins say "in God we trust," and the crier in the Supreme Court intones, "God save the United States and this honorable Court." Such ceremonial references have long

been an accepted part of our public life. In the words of the Latin maxim, *de minimis non curat lex*: the law is not concerned with trifles. These allusions have never been viewed as affecting the First Amendment's mission.

But here we're dealing with schoolchildren. Its advocates may call school prayer voluntary, but in the classroom a moment or a minute of silence, reflection, meditation -- label it what you will -- becomes mandatory. Picture the scene. A teacher tells the class, "it is now time for our daily religious exercise, children. Remember, you cannot pray and must be silent, but you may reflect about your life, school, your family or friends or anything that is important to you." *Any* voluntary prayer is by definition personal. For a public school authority to arrange for something voluntary in an activity that comes from within is self-contradictory. It engages the state in a religious exercise, and allows the camel's nose inside the tent. It also usurps the right of parents to determine their children's religious activities. The Free Exercise Clause prevents a teacher acting under color of law from telling children to engage in religion in any form.

To have sectarian prayer in our public schools is to have government foster religious views on perhaps the most sensitive and defenseless of us--*little, impressionable children.* What child in elementary school can stand up to peer pressure of other children whose parents demand that they recite a prayer in school? When school prayer was the rule, children of minority faiths were usually sent into the hallway while the rest of the class prayed. Nonconformity produces a stigma that can pain a child deeply and can have lasting effects. And why should public officials, whose salaries are paid by taxpayers of mindboggingly diverse backgrounds, demand sectarian prayer? The wording of the prayers will become a political football with the strongest group getting its way. And today's majority can become tomorrow's minority.

Remember what happened just a little over twenty years ago in Oregon. Followers of the Reverend Sun Myung Moon bought a huge plot of land and almost took over the county. If they had gained a majority of the school board, they could have written their beliefs into a prayer that all children attending public schools had to recite. We can only wonder -- what would the good Christian parents have then said?

Even on policy as opposed to constitutional grounds, prayer in public schools makes little sense. This is very different from saying a prayer at an outdoor football game or even at a graduation ceremony which has a certain element of state involvement. School prayer, even voluntary prayer, its supporters may say, takes 'only a minute.' But no public school activity in a classroom of 25 to 30 fidgety children takes 'only a minute.' Just ask any teacher.

But those teachers throughout the state have over the past generation been given changing instruction as to what is possible. Under the guise of a truly estimable goal, instilling values, we have seen teachers reading the Bible in class. We have seen teachers requiring students to pray out loud in class. We have even seen Gideon Bible representatives distributing their Bibles in class. All of this in spite of the fact that these activities have been declared unconstitutional. Only a year

after the school prayer case, the Supreme Court invalidated state-sponsored Bible reading and recitation of the Lord's Prayer on the ground that a state was not permitted to conduct religious exercises. Our state has passed new laws to replace the parts of the old ones the courts strike down. This has encouraged abuses of students' constitutionally guaranteed rights, and it is nothing less than a form of interposition by statute.

Under the Constitution civil government has no power over the realm of conscience. Could anyone really think that our forefathers fought a revolution and wrote a constitution and included at the beginning of the very First Amendment that Congress shall pass no law respecting an establishment of religion so that children in their *classrooms* in free *public* schools, open to all, should recite a *government* sponsored prayer? That could hardly be what the Land of the Free and the Home of the Brave about.

A nondenominational prayer is more than an oxymoron -- it is a mistaken notion. Many faiths find it theologically offensive. One person's devotion is another's reverence. We are the most religiously diverse nation in the world with over one thousand different religious bodies and sections; eighty of them have more than fifty thousand members each; and there are seventy-five varieties of Baptists alone. These numbers are increasing as religious minorities grow. Indeed the fastest growing religious group today is Islam. How in heaven's name, if I may, can a prayer be devised which all will accept?

Who would prepare it? Which version of the Bible is to be used? Suppose most in any given community agreed on Psalm 23, where would that leave Muslims? If a student asks a question about a prayer, would the teacher be required to respond? And would this tip the scale toward "establishment of religion"? Are courses in religion going to be required as part of a teacher's training? All teachers or only some? A whole new host of problems would open up, which, certainly, public schools do not need. The resulting discord would only harm children's education. The First Amendment was devised precisely to save us from official attempts to fix any prescribed orthodoxy.

Public school teachers may teach religious history or instruct on the purposes of religion or the rites of individual religions. But public schools have no religious purpose or function. Now, it may be urged that prayer exercises allow children to follow the ancient practice of starting any important and serious activity by seeking the inner strength that flows from a prayer for Divine assistance. But when teachers lead or supervise this exercise, they give the state's machinery an imprimatur of infallibility that at a minimum can make children who do not join feel like outcasts. These children are being asked to abandon their nascent beliefs or find themselves marked as different. They run the risk, through no fault of their own, of becoming wary, distrustful, critical, angry. The indirect coercive pressure upon religious minorities to conform to the officially approved prayer is plain.

Schoolchildren are by any standard a "captive audience," that is, they come to school for one purpose but find themselves used for another. Children go to public school for a secular education. How sadly ironic it is that many champi-

ons of having children pray in public school are the same people who talk so fervently about getting government "off our backs." They would be surprised, to say the least, if they knew that the phrase was the brainchild of Justice Douglas, whose ideas on public policy were often diametrically opposed to theirs. Government-mandated prayer shows disrespect to the home and the true family values that *all* people want.

The idea of choice inheres in democracy. School prayer promoters are asking something exceedingly peculiar. They want public school children, citizens of a country born in revolution, to pledge unquestioning allegiance to a prayer their government dictates. But the words of any nondenominational prayer will force atheists and non-observers as well as adherents of non-western religions such as Islam and Buddhism to feel pain because their rituals are at odds with those of the larger community. Do we, in a land which so proudly and rightly lauds its freedom and tolerance, want to foist on our young a vague theocratic identity? That is not democracy. At issue is what duty some people feel they owe their Creator. Those who wish to blend government and religion ignore the simple fact that the rights of conscience thrive best when left alone. Pious people do not require Caesar's helping hand to serve God.

Words may be, as Socrates said, "more plastic than wax," but they are the only thing we have to work with, and since the school prayer case wordmasters have been trying to come up with a subterfuge that would pass muster with the Supreme Court. Prayer, nonsectarian prayer, nondenominational prayer, voluntary prayer, silent prayer, a moment of silence, meditation -- prayer advocates have tried all, and all have failed. Their intent is ultimately religious, as their sponsors have frankly acknowledged. And the Court has properly made short shrift of these back-door attempts. It has chosen to keep the school prayer case as the luminous law it is. No justice has said that it should be overruled. Indeed, speaking for the Court in a 1992 case, Justice Anthony Kennedy wrote, "No holding by this Court suggests that a school can persuade or compel a student to participate in a religious exercise." Not even Justice Antonin Scalia in dissent, who is often outspoken in these matters, took aim at the school prayer case.

But in the now thirty-five years since it came down, hundreds of proposed constitutional amendments have been introduced with the intent of overturning it. Advocates of school prayer believe that its return will, almost by itself, somehow restore traditional moral values to our classrooms, bring back "the good old days." In the same vein lies the effort over the past fifteen years by a resurgent "religious right," as it has come to be dubbed, with wide support, to overturn the Bible reading case so that the Bible could take its place as a central, perhaps the *guiding*, text in America.

The problem with this most sincere effort is that the Framers of the Constitution aimed to create a government and governmental institutions without religion because they understood the overriding importance of depoliticizing it. They created what has been called, provocatively but accurately, a "godless constitution," placing it on an intentionally secular base. In no place is this more true than in a courtroom.

We have been hearing very much about the Ten Commandments in court. But an explicitly Christian prayer, delivered by a minister of the judge's choosing -- with or without the Ten Commandments present -- is very different from, say, an ecumenical Thanksgiving proclamation released by the President or even the benediction delivered by a legislative chaplain. The commandments themselves, while far from being an accouterment, present a different question. But not a courtroom prayer. It is necessarily denominational and state-sponsored, and that the Establishment Clause outlaws. Lawyers and jurors are in court under compulsion. They are a captive audience in a setting resembling that of a classroom. The coercion element needs no little elaboration. Even more, a courtroom is a civic sanctuary, a realm solely of the public, where claims are adjudicated on their merits. Injecting religion in any manner whatsoever outside the case at bar makes a mockery of the word justice.

Religion can be truly free only if it is completely independent of the state. Each should simply keep out of the other's way so it can perform its functions as it sees best. Separation advantages both entities: the state, for which it is a source of strength; and the church, which has the freedom to operate independently. A congregant's confidence in his church's autonomy, his pride in its sovereignty, his trust in its self-sustaining efficiency, are all affirmed. As Justice Black wrote, "a union of government and religion tends to destroy government and degrade religion." If democracy is Protestantism in its secular form, it is also the practice of protecting the people's liberties. The right to talk or pray -- or *not* to talk or pray -- was the priceless gift the Framers of the Constitution bestowed to us. It takes no great leap of faith to believe that they would strongly disapprove government sponsorship of any religion, even ecumenical Christianity.

Teachers are in public schools to *teach*, not to be leaders or overseers of sectarian prayer. Students are there to *learn* and to gain, along with what they receive at home, those virtues and other antecedents necessary for good citizenship. Forcing them to recite state-mandated prayers is no way to advance the community ideal of tolerance, that mutual forbearance which is a condition of democracy. Is it not at the minimum a contradiction to have our children taught one moment that our nation was conceived in liberty and, the next minute, be forced to engage in an artifice which they're not in school for? Once the classroom door closes, education, not inculcation, is the objective. Why use our hard-earned tax dollars, as many of those who favor school prayer might say, for any other purpose? The schoolhouse on the prairie is not the church on the prairie.

Prayer belongs in our churches, synagogues and homes. If families did their job in this area, schools would not have to be involved. Witness the survival of religions which lack the sheer number of adherents of the major Christian faiths. "We have a very easy remedy," President Kennedy said after the school prayer case, "and that is to pray ourselves." Relationship to one's Creator ranks among the most private and sacred parts of any person's life. It simply has no place in the public schools of a democracy.

The Supreme Court is more than the highest court in the land -- it is among

our preeminent national educators. It converts our most precious maxims, such as "due process of law" and "separation between church and state," into reality. The "basic premise" of the First Amendment, Justice Black wrote a relative after the school prayer case, "is that people must be left to say their prayers in their own way, and to their own God, without express or explicit coercion from any political office holder. There are not many people with religion and intelligence who will think this constitutional principle wrong on mature second thought. To those who think prayer must be recited parrot-like in public places in order to be effective, the sixth chapter of Matthew, 1 to 19, might be reflected upon, particularly verses 5 through 8." Let me quote part: "But when you pray, go into a room by yourself, shut the door, and pray to your Father who is there in the secret place...."

E pluribus unum has long been a great American rallying cry. But lately we have been hearing more talk about the *pluribus* than the *unum*. Some parents claim that the rights of children are violated by not letting them pray in school. In our unsettling times people are searching for something they can't define, but can hold on. They forget that our greatest *unum* -- the single largest ingredient in keeping our nation together -- is the Constitution. It is what makes this country unique. The FirstAmendment stands proudly as a mighty shelter to those at any level who question, who doubt, who challenge. Call them nonconformists, individualists, eccentrics; give them a political label; but these people are ourselves. Maintaining this shield for every human being subject to the Constitution is the Supreme Court's highest and most solemn responsibility. It is, very simply, what the United States is all about; why, as long as we have our Constitution, we will be a mecca for freedom.

In the field of religion and of school prayer government can only trumpet, in the words of Simon and Garfunkel, "the sounds of silence." Millions of Hugo Black's fellow citizens turned a deaf ear to this beautiful, resounding, constitutional noise. The Court was writing "songs voices never share" and these people were "hearing without listening." It was reserving this silence for all children in public school regardless of their belief or persuasion. It was exercising its constitutional duty, and the worst that can be said of the Court is that it has loved religious freedom, like Othello perhaps, not wisely, but too well.

When it comes to the Constitution and the Bill of Rights, we are not Democrats or Republicans; Protestants, Catholics, Jews or Muslims; white, black, Hispanic or Asian. We are *Americans*. In our Constitution lay our common roots, the heritage of a secular republic -- with liberty and justice for all.

Cases such as the school prayer case, interpreted with the Framers' libertarian ends in mind, remind us why we have a written charter of government to guide our republic. They keep the First Amendment's original purpose where it belongs, at the center of the American stage. Let our children pray where prayer belongs, *outside* our public schools. We cannot, we will not, we *must* not equivocate. We must remain absolutely faithful to our inheritance. "We must not be afraid to be free."

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